

Department of Civil & Architectural Engineering

Department Executive Summary

This document reports about progress and activities of the Department of Civil & Architectural Engineering for the calendar year 2019. During this year, the department continued its strong activities in teaching and research besides taking forward steps in outreach of high school students and interacting with the industry. With regarding to the teaching and learning, the Department continued to support the **implementation of pedagogy to improve the students learning** and shared the experience **through a number of publications in the area of Engineering Education**. The Department also continued its effort to support the students at risk through its **coaching system**. Some key activities of 2019 regarding the undergraduate program are **the revision and update of course description** and the **revision of comprehensive exam**. To improve the use of lab facilities, the Department **revisited the use of existing equipment** to improve their use of basic courses in Civil Engineering. The Department submitted a proposal, which was approved by the College, to **ISO-certify its testing** and currently undertaking the steps needed for certification. The Department also submitted a proposal for the **development of major facility in Structural Engineering**. The calendar year 2019 witnessed a **successful academic review of the master program in Civil Engineering**. The Department was invited to submit an extended proposal for the **Minor in Engineering Project Management** that the Department is planning for students from all departments from the College of Engineering. In research, the faculty members continued to **publish at high quality journals and conferences**. One key achievement is the **inclusion of Civil Engineering at Qatar University in the 2019 Shanghai Ranking within the top 201-300** in the world. Faculty members continued to pursue **funding from the university and QNRF** with good success. The Department continued its effort to outreach for high school students, through **School Visits** and taking part in **the Engineering week**. The Department also organized the **Bridge Competition for High School Students** twice in 2019. Furthermore, the Department organized for the first time the **Civil Engineering Winter Camp for High School students** which was organized for a week during the winter break 2019. In its continuous effort to engage with the industry, the Department organized a **monthly Civil Engineering industrial workshop** that targets the industry with invitation to faculty and students. The workshops hosted high quality senior engineers from the industry to speak about the hot topics in Civil Engineering. In its effort to maximize the interaction with the industry and academia at both national and international levels, the department has initiated the **International Conference on Civil Infrastructure and Construction**. The conference will be held in February 2020 and it is **co-organized with the Public Works Authority (Ashghal) and the Ministry of Municipality and the Environment (MME)**. The conference has received strong support from **the main stakeholders in Qatar** in infrastructure such as Qatar Rail, Qatari Diar, Alsarh Group, CCC, and the Supreme Committee for Delivery and Legacy. It also received **strong support from the major**

International Civil Engineering institutions such as the ASCE, ICE, IABSE, EA, ACI and local institutions and societies such as Qatar Society of Engineers and the Green Building Council. The report shows good level of details along with the dates of the activities and achievements during the calendar year 2019.

Department Profile

Table 1: Executive Summary of Civil & Architectural Engineering Department

Description	
Academic and Support Staff 2019	
Faculty	16
Teaching Assistant	7
Graduate Assistant	3
Technical and Administrative Staff	3
On-Study Leave	2
Total	29
Undergraduate Program 2019	
Enrollment (Fall 2019)	258
Registered (Fall 2019)	240
Graduates (Spring 2019)	31
Graduates (Summer)	21
Graduates (Fall 2019)	25
Graduate Program 2019	
Enrollment (Fall 2019)	45
Registered (Fall 2019)	31
Graduates (Spring 2019)	12
Research Projects (Awarded in 2019) 2019	
GSRA	3
NPRP	1
PDRA	1

UREP	5
Qatar University Grants	9
University Internal Students' Grants	3
QU grants to conduct Conferences	1
Research Projects (Active in 2019)	2019
GSRA	2
NPRP	9
PDRA	1
UREP	5
Qatar University Grants	2
University Internal Students' Grants	3
GCC Co-Fund Program	1
Publications (Appendix A1)	2019
Refereed Journal Papers	63
Conference Papers	33
Technical Reports	1
Book Chapters	2
Books	0
Book Reviews	0
Editorials and Essays	0
Seminars – Public Lectures – Short Courses (Appendix A2)	2019
Seminars and Public Lectures Delivered by Departmental Faculty Members Inside Qatar University	2
Seminars and Public Lectures Delivered by Departmental Faculty Members Outside Qatar University	0
Short Course Delivered by Departmental Faculty Members	1
Seminars and Public Lectures Attended by Departmental Faculty Members	13

Seminars and Public Lectures Delivered by Visiting Academics and Professionals	1
Invited Public Lectures/ Keynote Speakers	1
Faculty Activities (Appendix A3)	2019
Consultancy	1
Community Service	8
Professional Service	8
Awards and Achievements	1
Conferences Attended	16
Workshops, Training and Visits Attended	12
Workshops, Training and Visits Delivered	4
Seminars & Trainings	7
Events Organized	1
Other Activities	3
Students' Activities (Appendix A4)	2019
Competitions	6
Awards	5
Field Trips, Social and Extra-Curricular Events	5

Academic Staff

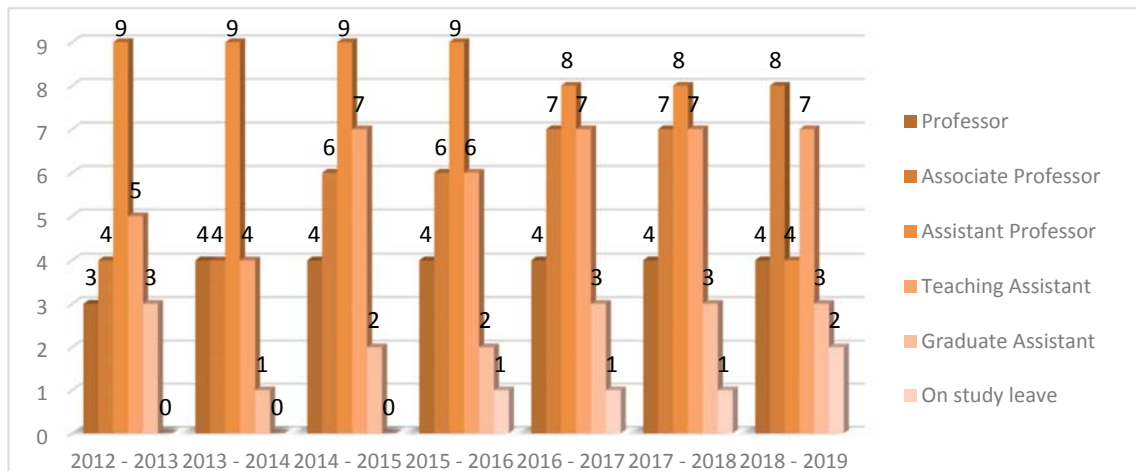


Figure 1: Academic Staff in CAE Department, 2012-2019.

Technical and Administrative Staff

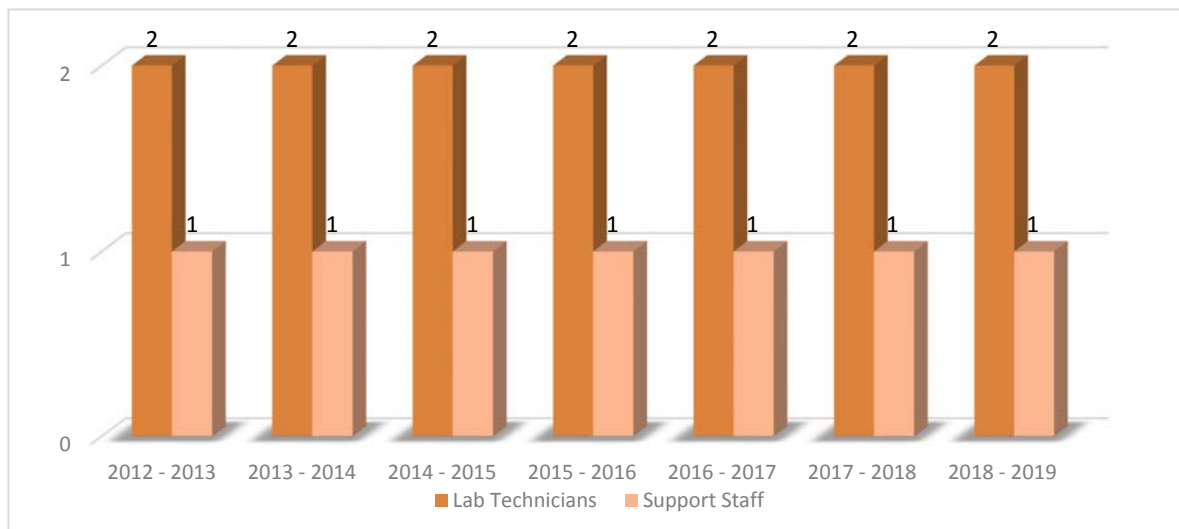


Figure 2: Non-Academic Staff in CAE Department, 2012-2019.

Department Standing Committees

The department has number of committees and coordination roles for 2019 as listed below:

- Departmental Board Committee: Dr. Mohammed Hussein (Chair).
- Postgraduate program coordinator: Dr. Mohammed Elshafie.

- Curriculum and quality assurance Committee (Fall 2019): Dr. Alaa Al-Hawari (Chair), Prof. Murat Gunduz, Prof. Hisham Eid.
- Curriculum and quality assurance Committee (Spring 2019): Prof. Khaldoon Bani-Hani (Chair), Prof. Usama Ebead, Prof. Murat Gunduz, Dr. Alaa Al-Hawari.
- Research and postgraduate committee: Dr. Mohammed Elshafie (Chair), Dr. Khaled Shaaban, Dr. Okan Sirin.
- CIC 2020 Conference: Dr. Okan Sirin (Chair), Prof. Usama Ebead, Prof. Murat Gunduz, Prof. Hisham Eid, Dr. Mohammed Hussein.
- Promotion committee: - Ad-Hoc Committee.
- Recruiting committee
 - Spring 2019: Dr. Alaa Al-Hawari (Chair), Dr. Riyadh Al-Raoush, Dr. Wael Alnahhal.
 - Fall 2019: Dr. Mohammed Al-Ansari (Chair), Dr. Murat Gunduz, Dr. Wael Alnahhal.
- Scheduling coordinator: Dr. Wael Alnahhal.
- Newsletter coordinator: Dr. Alaa Al-Hawari.
- Accreditation of lab testing coordinator:
 - Spring 2019: Dr. Khalid Naji
 - Fall 2019: Dr. Wael Alnahhal.
- Coordinator of Senior design project: Dr. Riyadh Al-Raoush.
- Coordinator for Winter Camp: Dr. Mohammed Hussein.
- Taskforce for major lab facility (Fall 2019) : Dr. Usama Ebead (Chair), Dr. Wael Alnahhal, Dr. Okan Sirin, Dr. Mohammed Elshafie
- Minutes recorder for Board meetings: Eng. Muhammad Shekab Afzal.
- CRU course coordinator: Dr. Khaled Shaaban.
- University Senate member: Dr. Wael Alnahhal.
- Administrator for Senior design projects: Eng. Muhammad Shekaib
- Administrator for outreach, events plus shared folder and software: Eng. Nasser Al-Nohmi
- Administrator for Curriculum committee, website and P-card: Eng. Abdulrahman Abu Hijleh
- Assistant coordinator for Scheduling and course registration: Eng. Khaled Rabie.
- Administrator for Postgraduate committee: Eng. Anas Alsharo.
- Assistant staff for tendering and labs safety and requirements: Eng. Abdul Azeez Kilayil.
- Assistant staff for accreditation and lab development: Eng. Siju Joseph.

Faculty Profile

Table 2: CAE Faculty Profile 2019

Photo	Faculty Name	Rank/Position	Area of Specialization
Faculty Members with Administrative Roles			
	Mohammed Hussein	Head of the Department of Civil and Architectural Engineering	Railway Engineering, Ground-borne Vibration, Structural Dynamics, Structural-Health Monitoring, Soil-structure interaction, Human-structure interaction.
	Hassan Al-Derham	QU President	Procurement of construction projects, productivity of construction projects, housing projects, evaluation of consulting offices
	Omar Al-Ansari	Qatar University Vice-President for Academic Affairs	Geotechnical Engineering
	Khalid Naji	Dean of the college of Engineering	Computer applications in construction engineering with emphasis on project management, cad and graphical simulation techniques, virtual environments
	Nasser Alnuaimi	Director of the Center for Advanced Materials	Structural concrete properties and behavior, concrete materials engineering and the design of reinforced concrete structures, concrete durability and concrete repair
Full Professors			
	Mohammed Al-Ansari	Professor	Reinforced concrete design; solid mechanics, Earthquake Engineering, Numerical Analysis

	Hisham Eid	Professor	Soil and rock mechanics, geo environmental engineering, soil structure interaction
	Usama Ebead	Professor	Structural Engineering, Rehabilitation of reinforced concrete structures, Finite element modeling of reinforced concrete structures, Durability of FRP reinforcement in concrete
	Murat Gunduz	Professor	Construction engineering and management, construction productivity measurement and improvement, construction health and safety, data collection and analysis
Associate Professors			
	Okan Sirin	Associate Professor	Pavement materials and design, Superpave technology, Accelerated pavement testing, Traffic engineering
	Alaa Al Hawari	Associate Professor	Water and waste water treatment (membrane rejection and fouling, bio sorption and selective adsorption), solid waste management and sustainability
	Khaled Shaaban	Associate Professor	Traffic Operations, Intelligent Transportation Systems, Traffic Simulation, Traffic Safety, Work Zones
	Riyadh Al-Raoush	Associate Professor	Fate and transport of contaminates in subsurface systems, Environmental fluid dynamics, Multiphase and multistate modeling of flow through porous media

	Wael Ibrahim Anahhal	Assistant Professor	Structural Engineering, Application of advanced composite materials (FRP) in the infrastructure and in upgrading deteriorating structures, Computational mechanics, Finite Element Analysis, Floor vibrations serviceability, and Earthquake Engineering.
	Mohammed Elshafie	Associate Professor, Postgraduate Program coordinator	Acquiring and understanding in-depth new information about Civil Engineering infrastructure; using novel sensing techniques on real world assets combined with advanced modelling techniques, provides the missing feedback loop between design, construction and operation.
Assistant Professors			
	Wael Alhajyaseen	Assistant Professor (QTTSC Center)	Traffic safety (Human factors, crash data and causality, driving simulation), Urban traffic control & operation, Road user behavior analysis (including naturalistic driving), Non-motorized traffic especially pedestrians and bicycles (facilities design, control and operation), Intelligent transportation systems (ITS), Travel behavior and forecasting (Macroscopic level), Public transportation, Road geometric design.
Teaching Assistants			
	Abdulrahman Z. Abu-Hijleh	Teaching Assistant	Construction Management & Analysis and Design of Structures
	Nasser Al-Nohmi	Teaching Assistant	Analysis and Design of Structures, concrete durability, Structural concrete properties and behavior & Construction Management
	Khaled Rabie	Teaching Assistant	Geotechnical Focusing on Landslides ,slope stability and soil shear strength

	Muhammad Shekaib Afzal	Teaching Assistant	Experimental testing of Large scale reinforced strengthened beams using textile-reinforced mortars and Finite Element Modeling of reinforced concrete structures.
	Hamad Alnuaimi	Teaching Assistant	Analysis and Design of Structures <u>(On-Study Leave)</u>
	Anas Al-Sharo	Teaching Assistant	Surveying, Structural Analysis and Design
	Eng. Salem Alnaimi	Teaching Assistant	Transportation Engineering <u>(On-Study Leave)</u>
Lab Technicians			
	Abdul Azeez Kilayil	Senior Lab Technician	Land Surveying, Materials Testing & Concrete and Soil Mechanics
	Joseph Valiya Parambil Siju	Lab Technician	Traffic, Transportation & Pavement and Material Testing
Administrative Assistants			
	Aisha Al-Kuwari	Administrative Coordinator	

Department/Program FTE

Table 3: Teaching load of 2018-2019

Academic	Courses	SDPs	Thesis	Total	Required	Difference
Dr. Al-Ansari	0	0	0	0	0	0
Dr. Al-Hawari	15	4.7762	3	22.7762	18	4.7762
Dr. Alhajyassen	6	0.80016	2	8.80016	6	2.80016
Dr. Al-Nahhal	15	2.2026	6	23.2026	18	5.2026
Dr. Al-Nuaimi	1.5	0	1	2.5	3	-0.5
Dr. Al-Raoush	15	3.79769	3.5	22.29769	18	4.29769
Dr. Khaldoon	12	2.40138	0.25	14.65138	15	-0.34862
Dr. Ebead	12	1.75035	3	16.75035	15	1.75035
Dr. Eid	12	2.97155	0	14.97155	15	-0.02845
Dr. Elshafie	12	5.4163	0	17.4163	15	2.4163
Dr. Gunduz	15	1.80186	3.75	20.55186	18	2.55186
Dr. Hussein	6	2.23594	1	9.23594	6	3.23594
Dr. Naji	12	2.72847	1.5	16.22847	15	1.22847
Dr. Shaaban	15	3.63946	1	19.63946	18	1.63946
Dr. Sirin	15	3.4967	0.75	19.2467	18	1.2467
Total overload						30.26866

Table 4: Teaching load of 2019-2020

Academic	Courses	SDPs	Thesis	Total	Required	Difference
Dr. Al-Ansari	12	3.631125	0	15.631125	18	-2.368875
Dr. Al-Hawari	13.5	2.7045	2	18.2045	18	0.2045
Dr. Alhajyassen	3	0	2	5	6	-1
Dr. Al-Nahhal	12	3.93952	1.5	17.43952	18	-0.56048
Dr. Al-Nuaimi	0	0	0.75	0.75	3	-2.25
Dr. Al-Raoush	12	1.33504	3	16.33504	18	-1.66496
Dr. Moncef	18	0	0	18	18	0
Dr. Ebead	12	5.0082	0.5	17.5082	18	-0.4918
Dr. Eid	18	0.25005	0	18.25005	18	0.25005
Dr. Elshafie	6	5.531325	0	11.531325	12	-0.468675
Dr. Gunduz	12	2.9702	3.5	18.4702	18	0.4702
Dr. Hussein	6	0.6668	0.25	6.9168	6	0.9168
Dr. Naji	6	0	1.25	7.25	3	4.25
Dr. Shaaban	9	1.8018	0	10.8018	12	-1.1982
Dr. Sirin	12	3.1691	1	16.1691	18	-1.8309
Total overload						-5.74234

Undergraduate Majors and Minors

Bachelor of Science in Civil Engineering

The Department of Civil and Architectural Engineering at Qatar University awards the Bachelor of Science (B.Sc.) in Civil Engineering. Civil Engineering is the broadest and oldest of the engineering disciplines, spanning across many technical specialties which are not independent, but rather interact with each other. Civil engineers plan, design, construct and maintain the physical and naturally built environment including buildings; roads; bridges; airports; railways; ports; water distribution and wastewater collection systems; waste disposal facilities; tunnels; stadiums; offshore structures; dams; and other infrastructure projects. As civil engineers develop their skills, they can advance into the area of engineering management, overseeing the completion of the whole project.

Our students have to complete a total of 131 credit hours in order to graduate with the B.Sc., degree. Our curriculum ensures an excellent coverage of mathematics and basic sciences; general education; communication skills development; engineering fundamentals; core and upper level civil engineering courses' requirements; and design experience. Additional opportunities to enhance professional development include industrial training; field visits; presentations by practicing engineers; involvement in research projects and competitions; participation in the ASCE Student Chapter; and participation in students' exchange through the International Association for the Exchange of Students for Technical Expertise (IAESTE) Program.

The department has 16 faculty members, 7 full-time teaching assistants, 2 engineering technicians, and 1 administrator. Three of those faculty members are fully engaged in upper administration duties. All faculty members have PhDs from various reputable institutions in three countries (USA, Canada and the UK). The faculty members' specialties cover various areas of Civil Engineering including structures; transportation; geotechnical and materials; water resources; environmental engineering; and construction management and engineering. A number of faculty members are also holders of the professional engineering license from the USA, Canada and Jordan. Our faculty members are also active in research and other scholarly work, professional service, and community engagement.

We are proud of our students, faculty, teaching assistants, and other supporting staff. We are also proud that the Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET. Accreditation ensures that the students, parents, employers, and the society we serve can be confident that a program meets the quality standards that produce graduates prepared to enter a global workforce.

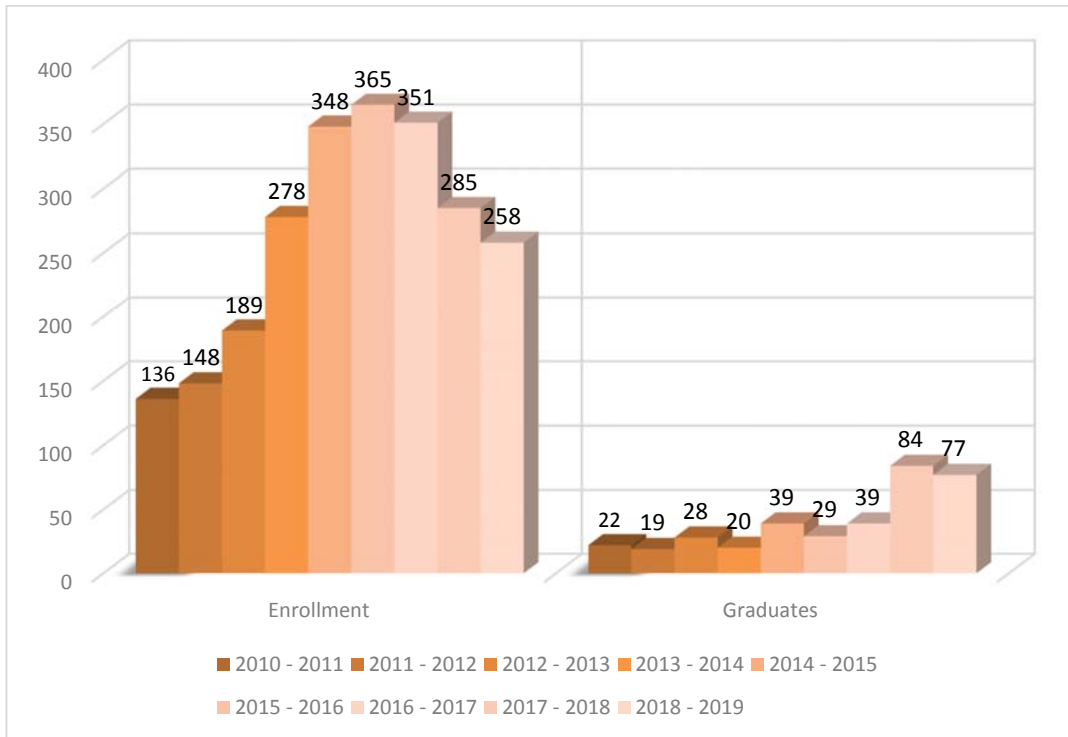


Figure 3: Number of enrolled and graduating undergraduate students in CAE department, 2010–2019

Postgraduate Programs

The Department of Civil and Architectural Engineering started its graduate programs in 2010 as part of the graduate program of the College of Engineering, CENG. It participates in two interdisciplinary master's programs: The Engineering Management and the Environmental Engineering Programs, offered under the umbrella of the College of Engineering. In addition, the department has started to offer master's and Ph.D. degrees in other Civil Engineering disciplines.

The details of the department's graduate degrees can be summarized as follows:

1. Master of Science in Civil Engineering: A program that was initiated in Fall 2011. It includes specialization in structures, geotechnical, transportation, and hydraulics and water resources. This program started enrolling students in Fall 2012.
2. Ph.D. in Civil Engineering: This program was set up in 2010 and accepted two students in the area of structures/materials in Fall 2011. It grew in the following years and expected to further grow in the future.
3. Master of Science in Engineering: The Department of Civil and Architectural Engineering participates in two CENG Master of Science degrees in Engineering:

- a) Engineering Management (Construction Track), in collaboration with the Department of Mechanical and Industrial Engineering: This track started in Fall 2012.
- b) Environmental Engineering, in collaboration with the Chemical and Mechanical and Industrial Engineering Departments: This program started offering courses in Fall 2011.

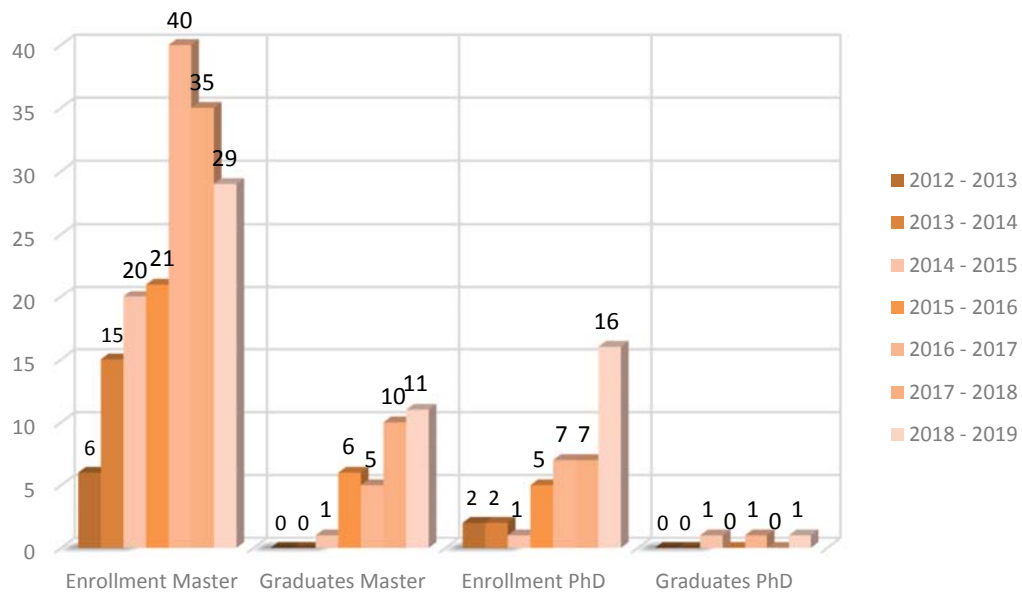


Figure 4: Number of enrolled and graduating graduate students in CAE department, 2012–2019

Internal, External Grants and Research

The following table illustrates the awarded research projects in the Department of CAE 2019

Table 5: Awarded Research Projects and Grants in the Department of CAE in 2019

Project Number	Project Title	Co-LPI/LPI
UREP24-011-2-005	A Comprehensive Traffic Noise Study at Major Intersections within Doha City	Khaled Salah Shaaban
PDRA5-0228-19001	The Utilization of TBM Muck and Substation Excavation Wastes Generated in Qatar for Construction Applications	Mohd Salem H Al-Ansari
QUST-1-CENG-2019-26	“Effect of using carbon nanotubes (CNTs) on bond strength between concrete and basalt FRP bars	Wael Alnahhal

GSRA6-1-0301-19005	- Durability and Shear Performance of High-Strength of Fiber Reinforced Concrete Beams Reinforced with Basalt FRP Bars and Stirrups.	Wael Alnahhal (Supervisor),
GSRA6-1-0509-19022	Mechanical properties and durability of green concrete made with fly ash, recycled concrete aggregate and steel slag aggregates.	Wael Alnahhal (Supervisor),
UREP23-113-2-04	"Utilization of recycled materials and industrial by-products as alternative construction materials at Qatar	Wael Alnahhal
ID# 201	Development and behavior of high-strength green concrete made from locally available discarded materials in Qatar under harsh environment exposures".	Wael Alnahhal
NPRP12S-0314-190366	A novel Data-driven approach for designing dewatering systems in randomly fractured rock masses	Hisham Eid (LPI) and Mohammed Elshafie (PI)
QUCG-CENG-19/20-1	A novel oil recovery process from solid-water-in-oil emulsion in inhomogeneous electric field	Alaa Al Hawari
QUCG-CAM-19/20-4	Potential Application of Forward Osmosis-reverse Osmosis Seawater Desalination in Qatar	Alaa Al Hawari
IRCC-2019-004	Nanostructured Membrane for Reverse Osmosis Seawater Desalination	Alaa Al Hawari
GSRA6-1-0509-19021	Development of polymer based FO draw solution for irrigation purposes in Qatar	Alaa Al Hawari
QUCG-CENG-1920-4	The Action Plan for the Implementation of Qatar National Masterplan based on Integration of Land Use and Public	Mohammed Hussein (PI)

	Transport Systems	
QU-REF-XXXXXX	Capacity Building Grant with Dr. Ahmed Mohammed Ahmed from AUP department	Khalid Kamal Naji
UREP24-045-2-013	Shear strengthening of RC beams using steel reinforced grout	Usama Ebead
QUHI-CAS-19/20-1	Mesoporous Engineering of MXenes for Energy Storage	Usama Ebead
UREP24-022-2-009	Bioremediation of petroleum hydrocarbon-contaminated soil and groundwater in coastal areas of Qatar	Riyadh Al-Raoush
UREP24-135-2-038	"Evaluation of biostimulation to improve microbial electroremediation of petroleum hydrocarbon contaminated soils in bioelectrochemical systems"	Riyadh Al-Raoush
QUST-2-CENG-2019-18	"Remediation of groundwater contaminated by hydrocarbons in coastal areas of Qatar"	Riyadh Al-Raoush
QUST-2-CENG-2019-19	"Assessment and remediation of contaminated soil sites in industrial areas of Qatar"	Riyadh Al-Raoush
IRCC-2019-011	Transforming Locally Available Industry by-products to Innovation in Road Construction Materials	Okan Sirin (Lead PI), Nasser Al-Nuaimi (PI) and Murat Gunduz (PI),
QUCG-CENG-20/21-3	Development and behavior of high-strength green concrete made from locally available discarded materials in Qatar under harsh environment exposures."	Wael Alnahal, Nasser Al-Nuaimi internal grants as announced by the RO

CWSP17-C-0906-19015	International Conference on Civil Infrastructure and Construction	Okan Sirin, Hisham Eid, Murat Gunduz, Usama Ebead, Mohammed Hussein
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Table 6: Research Projects Active (running) during anytime from January 2019 to the end of December 2019 which were awarded in previous years

Project Number	Project Title	Co-LPI/LPI
UREP 22-062-2-022	Driver Distraction among Young Drivers Qatar National Research Fund	Khaled Shaaban
QUST-1-CENG-2018-28	A comparative traffic noise study between major signalized intersections and roundabouts within Doha	Khaled Shabaan
PDRA3-0402-17003	Towards a Flexi-Concrete: CNTs' Reinforcement Alternative	Mohd Salem H Al-Ansari
GCC-2017-008	Performance of Basalt Fiber Reinforced Polymer "BFRP" Reinforcing Bars under the GCC Harsh Environment	Wael Alnahhal
NPRP-8-1568-2-666	Amjad Aref, and Jongmin Shim, "Spectral Band-structure Identification of Amplitude-dependent Viscoelastic Mechanical Metamaterials"	Wael Alnahhal
QUCG-CAM-2018\2019-2	Fiber-reinforced polymer (FRP) Composites for Enhanced Performance and Durability of Concrete Beams under Harsh Environment Exposures	Wael Alnahhal
UREP22-006-2-002	Construction of Qatar's Rail Using Waste Steel Slag as a Ballast Material".	Wael Alnahhal
UREP21-089-2-039	Shear Behavior for Fiber Reinforced Concrete Beams with Basalt FRP Reinforcing Bars	Wael Alnahhal
UREP22-007-2-003	High quality treated wastewater for irrigation purposes using an optimized aeration process in	Alaa AlHawari

	membrane bioreactors	
GSRA5-2-0525-18072	Treatment of wastewater using a novel electrocoagulation process	Alaa AlHawari
NPRP10-0117-170176	Forward Osmosis Seawater Pretreatment for High Performance Thermal Desalination Plants	Alaa AlHawari
QUST-CENG-SPR\2017-29	Effective Treatment of Dewatered Construction Water Using Forward Osmosis	Alaa Al Hawari
GSRA4-2-0402-17013.	. Engineering a Fertilizing Draw Solution for Irrigation Water Supply	Alaa Al Hawari
QUEX-CENG-Rail 17/18	Framework for research on railway Engineering	Mohammed Hussein
NPRP 8-836-2-353	A Unified Approach to Vibration Serviceability Assessment of Floors	Mohammed Hussein
NPRP9-110-2-052	Sustainable concrete using seawater, recycled aggregates, and non-corrosive reinforcement	Usama Ali Ebead,
QUST-2-CENG-2018-13	Material characterization of seawater-mixed concrete and GFRP reinforcement for their use to design sustainable concrete structures	Usama Ali Ebead
UREP22-006-2-002	Construction of Qatar's Rail Using Waste Steel Slag as a Ballast Material	Riyadh Alraoush
NPRP9-093-1-021	Groundwater Pollution by Petroleum-Derived Contaminants in Coastal (Semi)-Arid Environment”	Riyadh Alraoush
NPRP 8-594-2-244	“Gas Production form hydrate-bearing sediments“	Riyadh Alraoush
NPRP9-390-1-088	“SIMUPOR: Simulation of microscale biogeochemical processes in porous media using advanced computer vision methodologies”	Riyadh Alraoush

NPRP11S-1211-170085	Self-Healing Bio-Concrete for sustainable and resilient Civil Infrastructure	Nasser Alnuaimi
NPRP 8-418-2-175	Guidelines for Enhancing the Performance of FRP-strengthened Concrete Beams under Fire and Harsh Environment Exposures	Nasser Alnuaimi

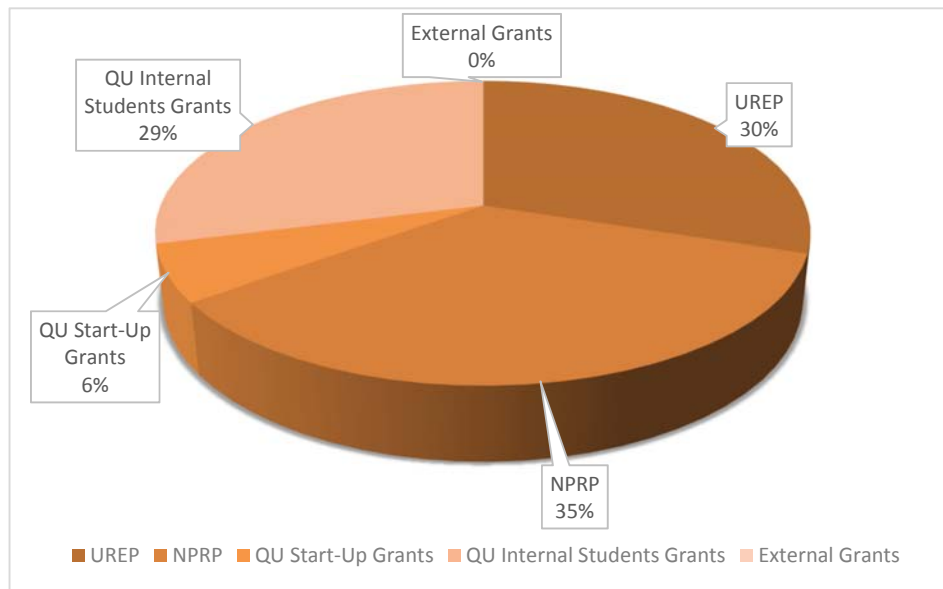


Figure 5: Research Projects Awarded in 2012-2013.

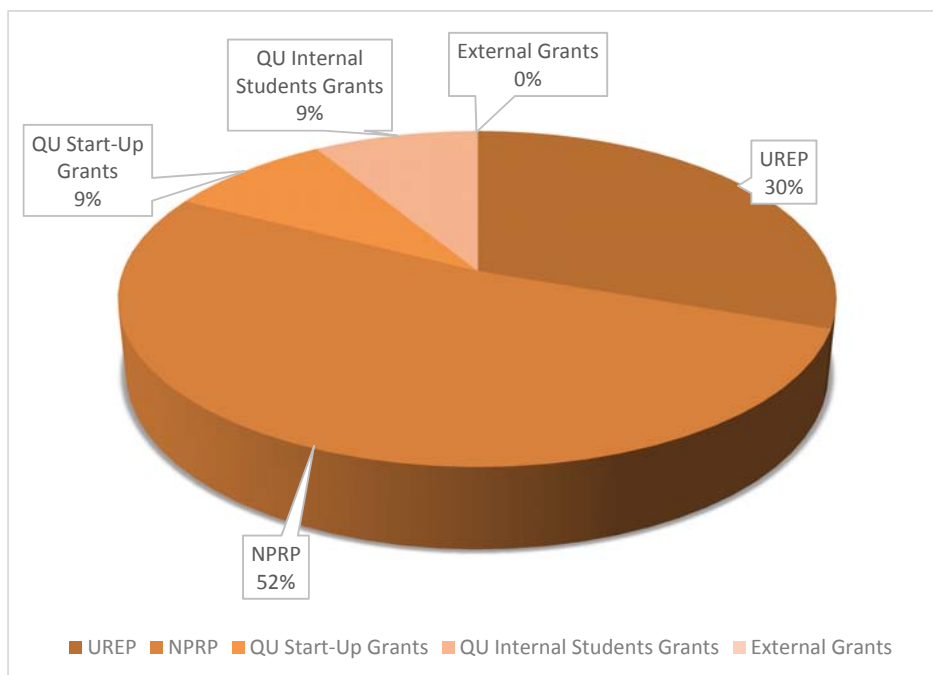


Figure 6: Research Projects Awarded in 2013-2014.

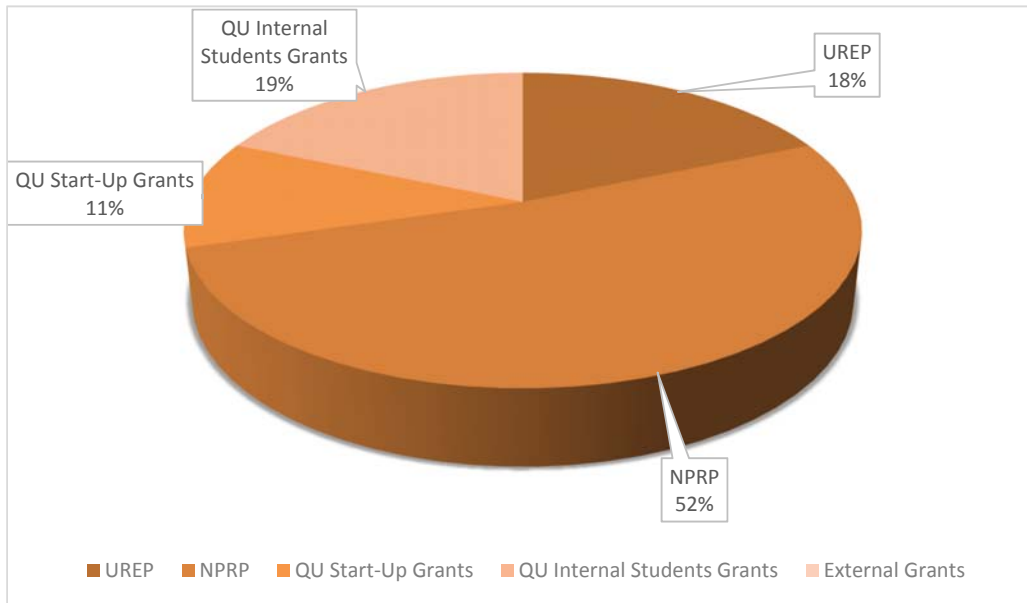


Figure 7: Research Projects Awarded in 2014-2015

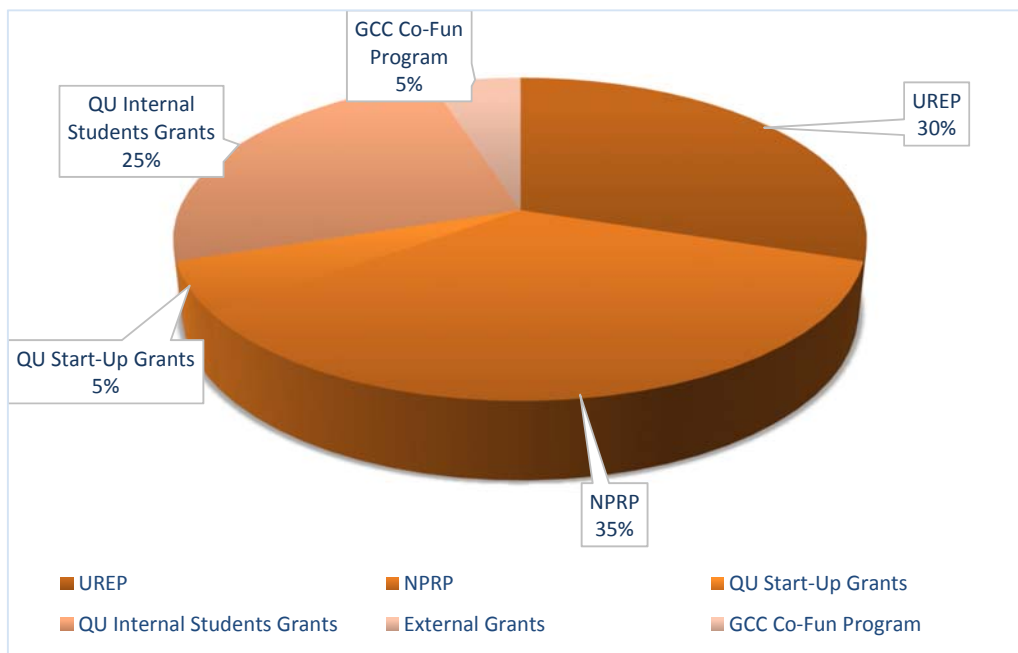


Figure 8: Research Projects Awarded in 2016.

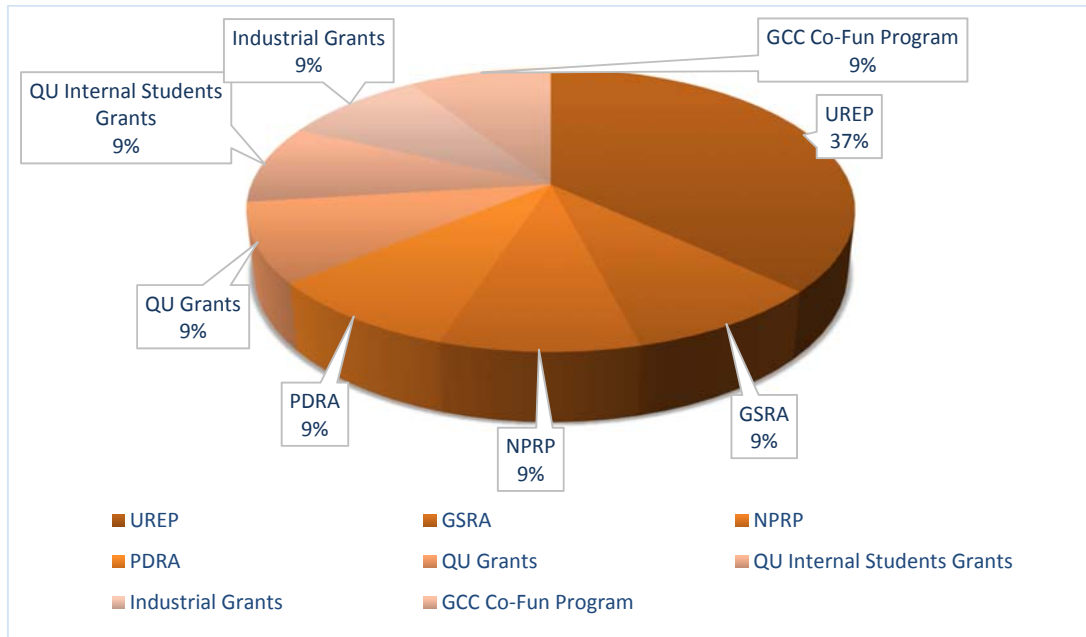


Figure 9: Research Projects Awarded in 2017.

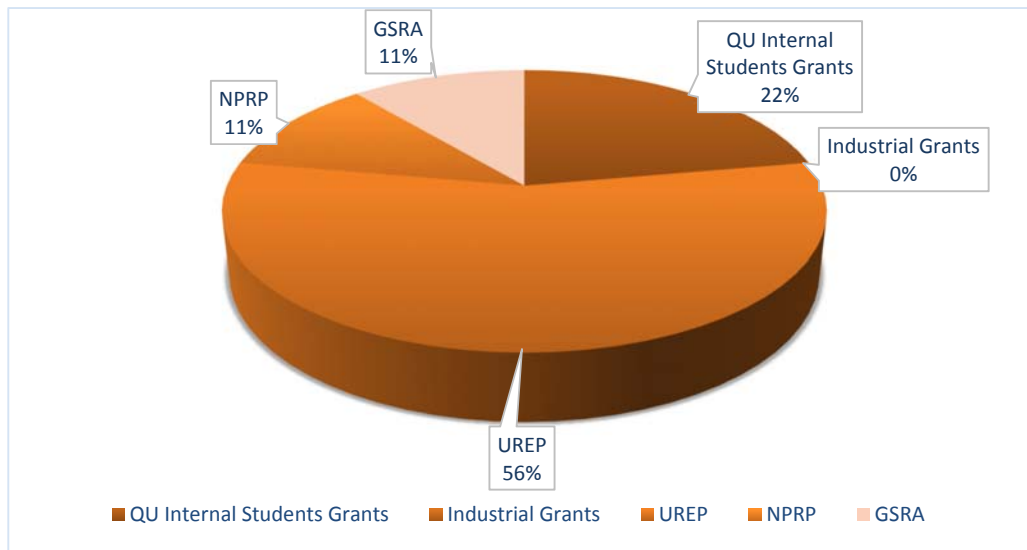


Figure 10 Research Projects Awarded in 2018.

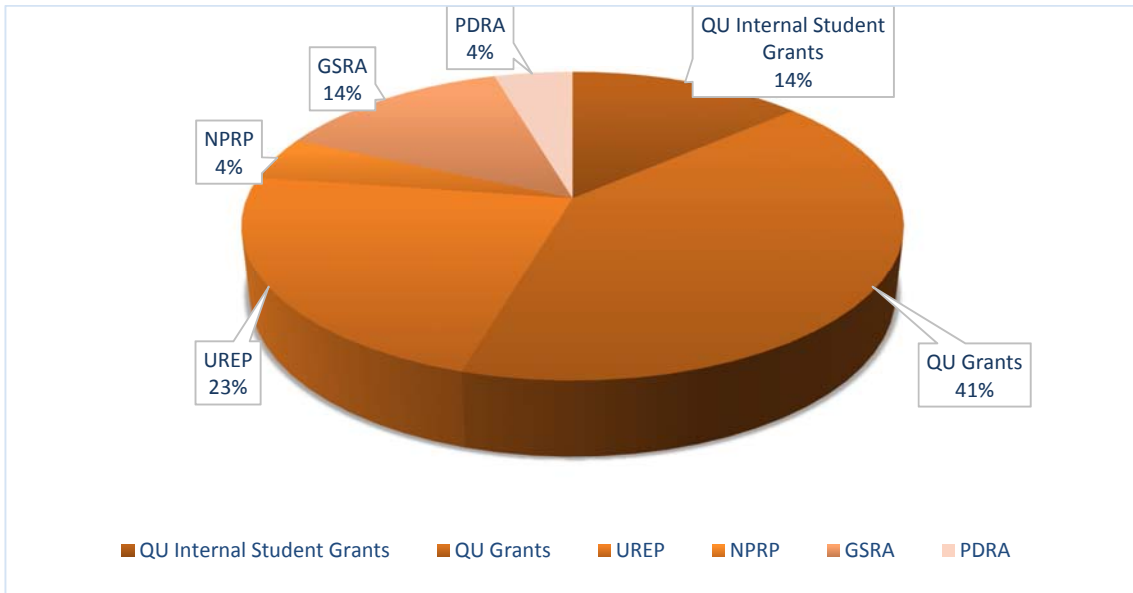


Figure 11 Research Projects Awarded in 2019.

Publications

The Figures below illustrate the publications in the Department of CAE 2013 -2019. List of publications in 2019 are indicated with details in appendix A1.

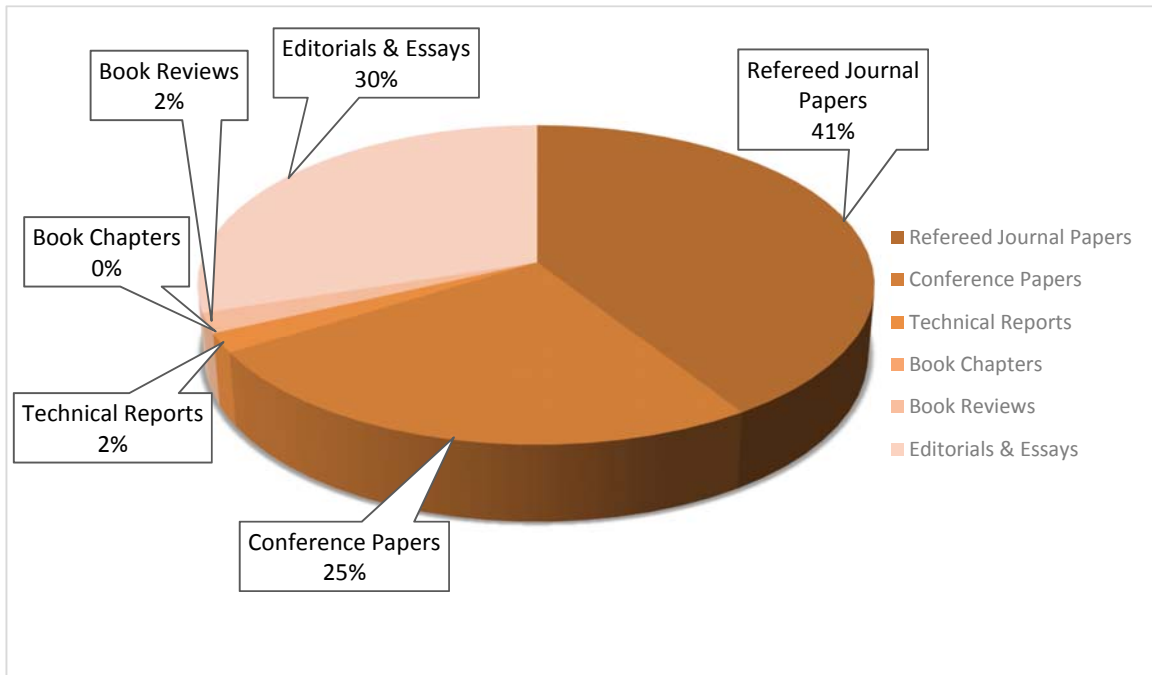


Figure 122: Publications by Faculty in 2012-2013

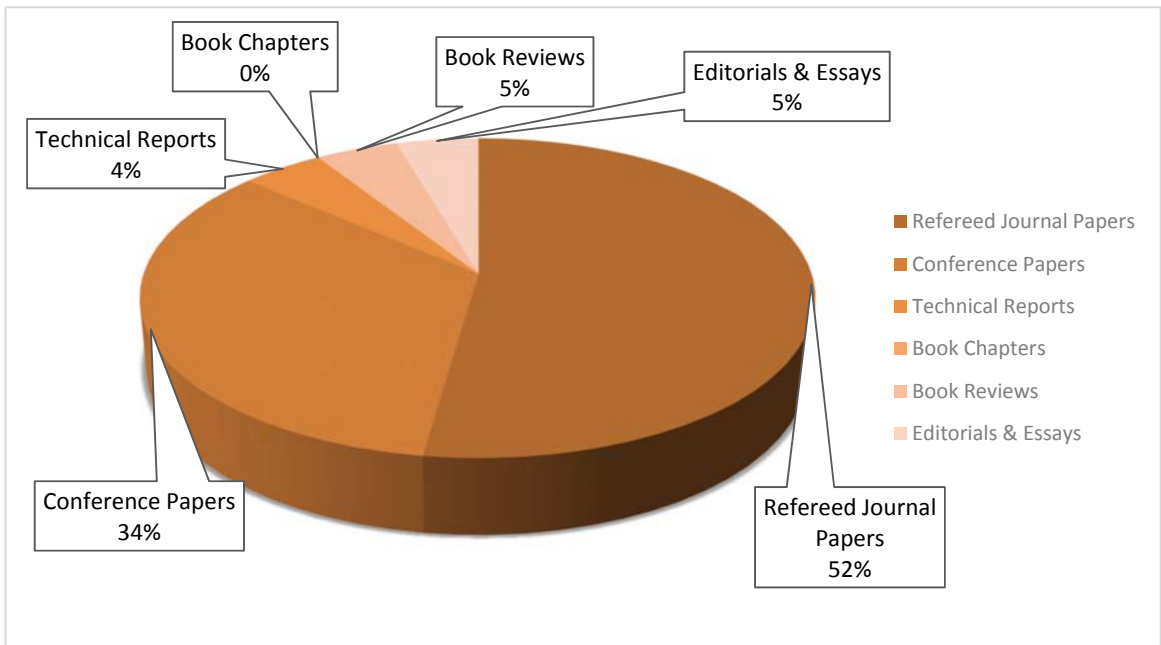


Figure 133: Publications by Faculty in 2013-2014

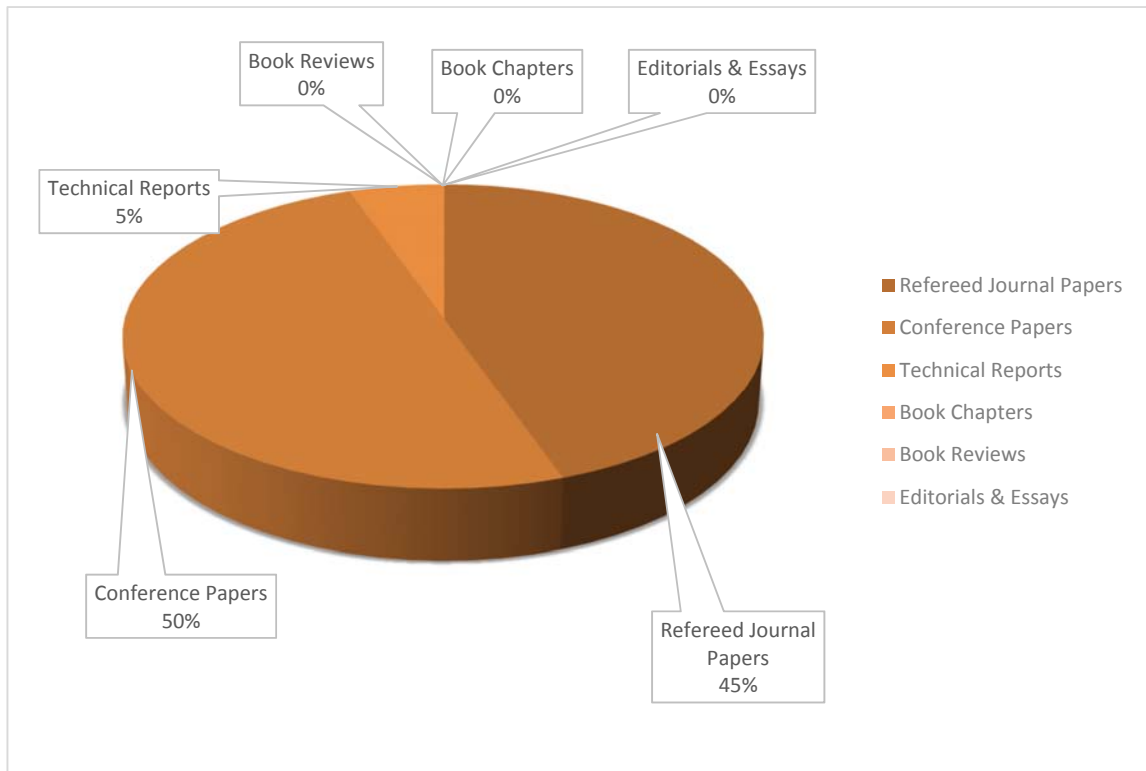


Figure 14: Publications by Faculty in 2014-2015.

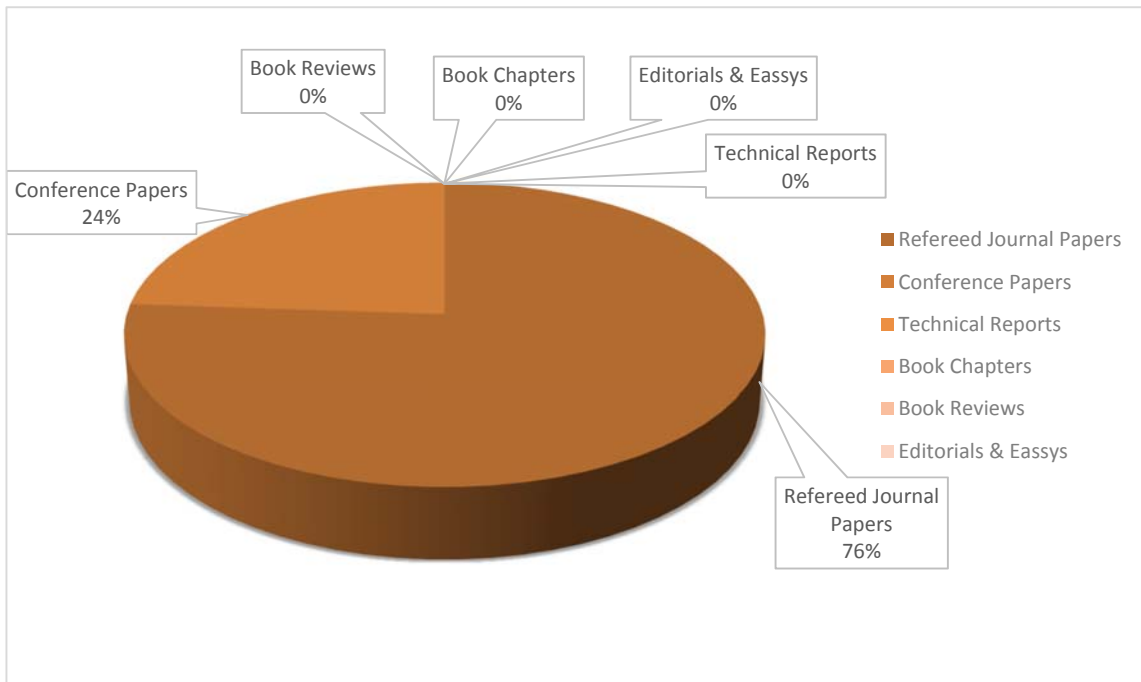


Figure 15: Publications by Faculty in 2016.

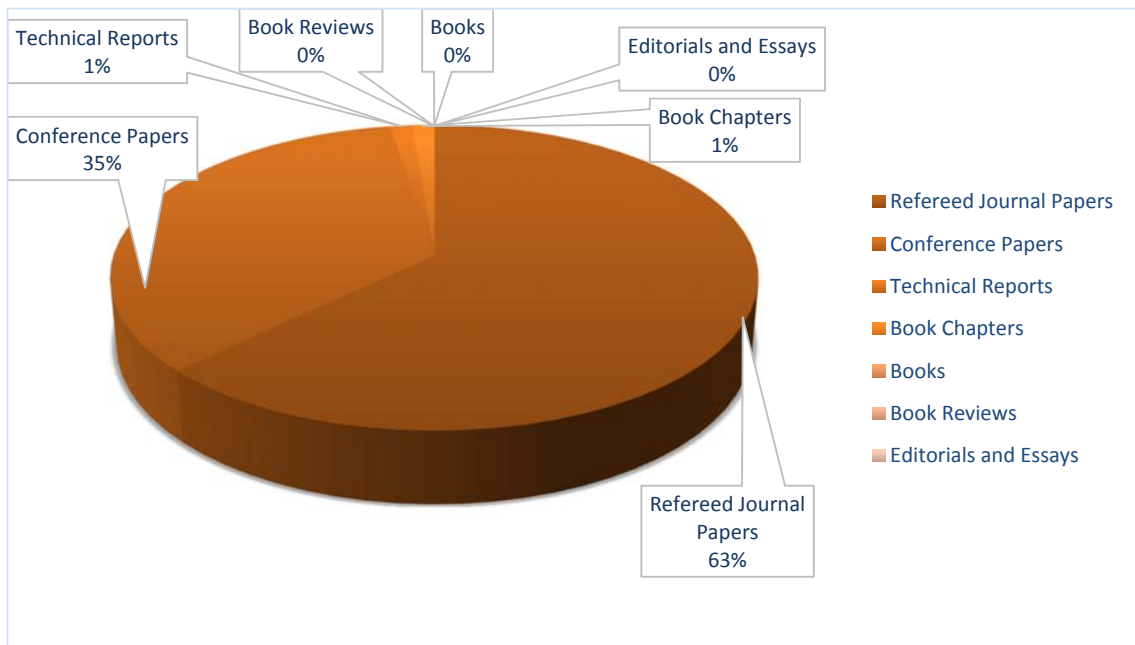


Figure 16: Publications by Faculty in 2017.

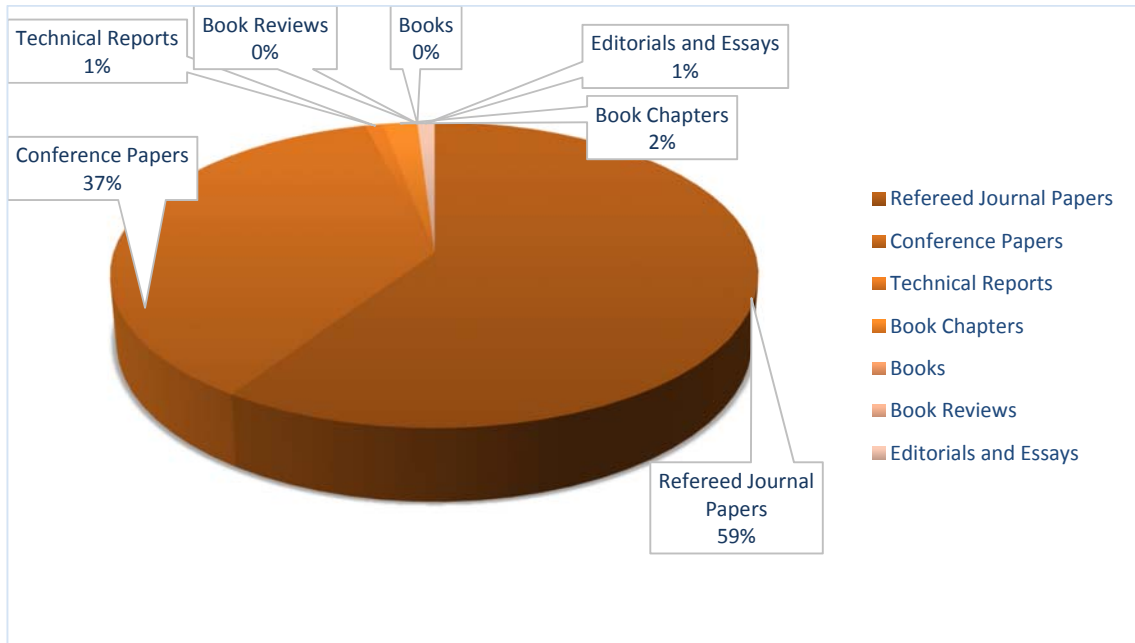


Figure 147: Publications by Faculty in 2018

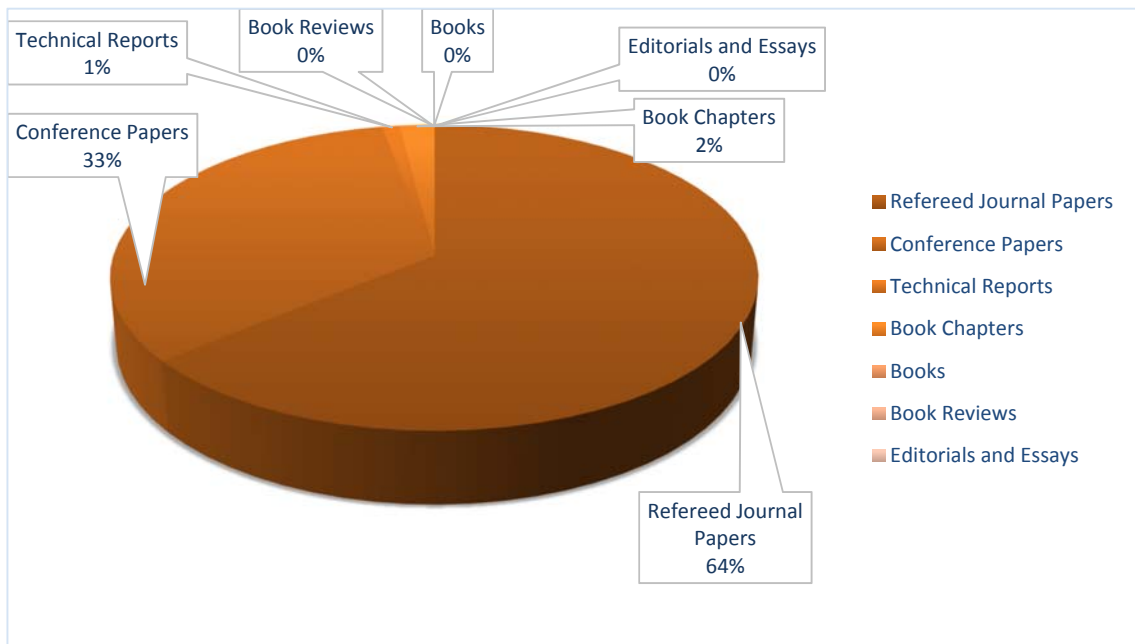


Figure 158: Publications by Faculty in 2019

Seminars, Public Lectures

The Department of Civil and Architectural Engineering held many seminars for the calendar year 2019. Department seminars were organized with the objective of sharing scientific

researches and academic experiences. Appendix A2 lists detailed data for seminars and public lectures.

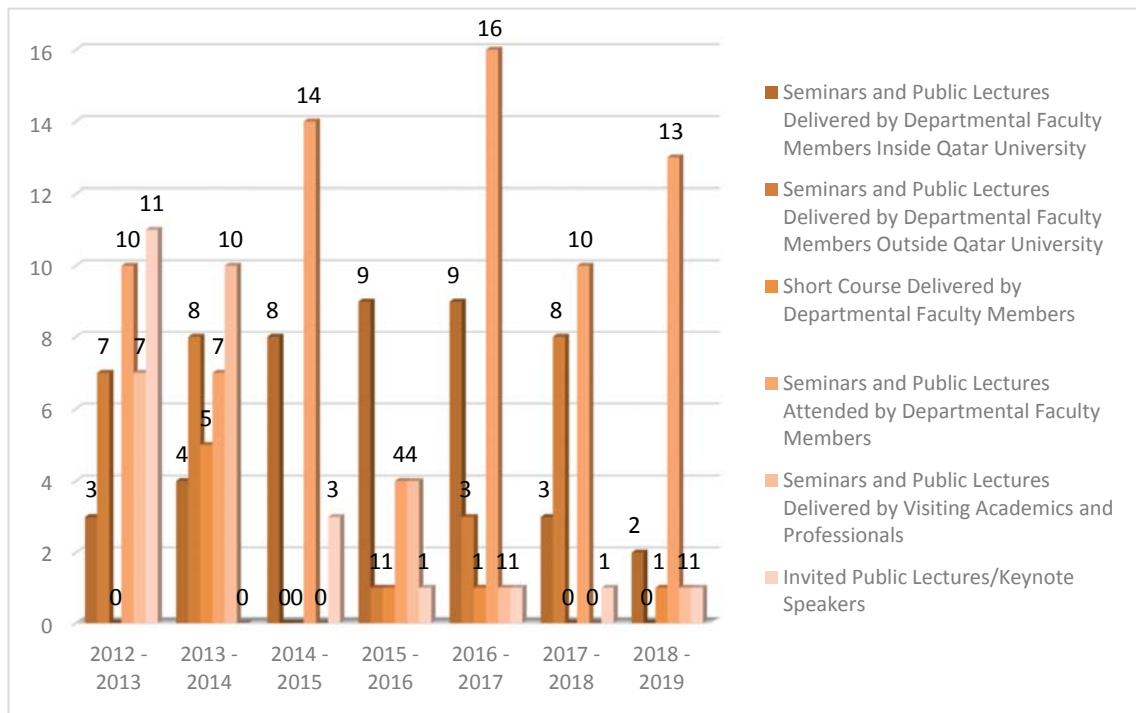


Figure 169: Seminars & Public Lectures in 2012-2019.

Academic experiences.

Appendix A2 lists detailed data for seminars, public lectures and short courses.

Professional Developments

A list of attended events namely conferences attended, workshops, training and visits attended and delivered, and other organized events is available in Appendix A3.

Service to Community and Outreach Programs

Appendix A3 lists detailed data for Service to Community and Outreach Programs.

Consultancies

List of consultancies provided are given in Appendix A3.

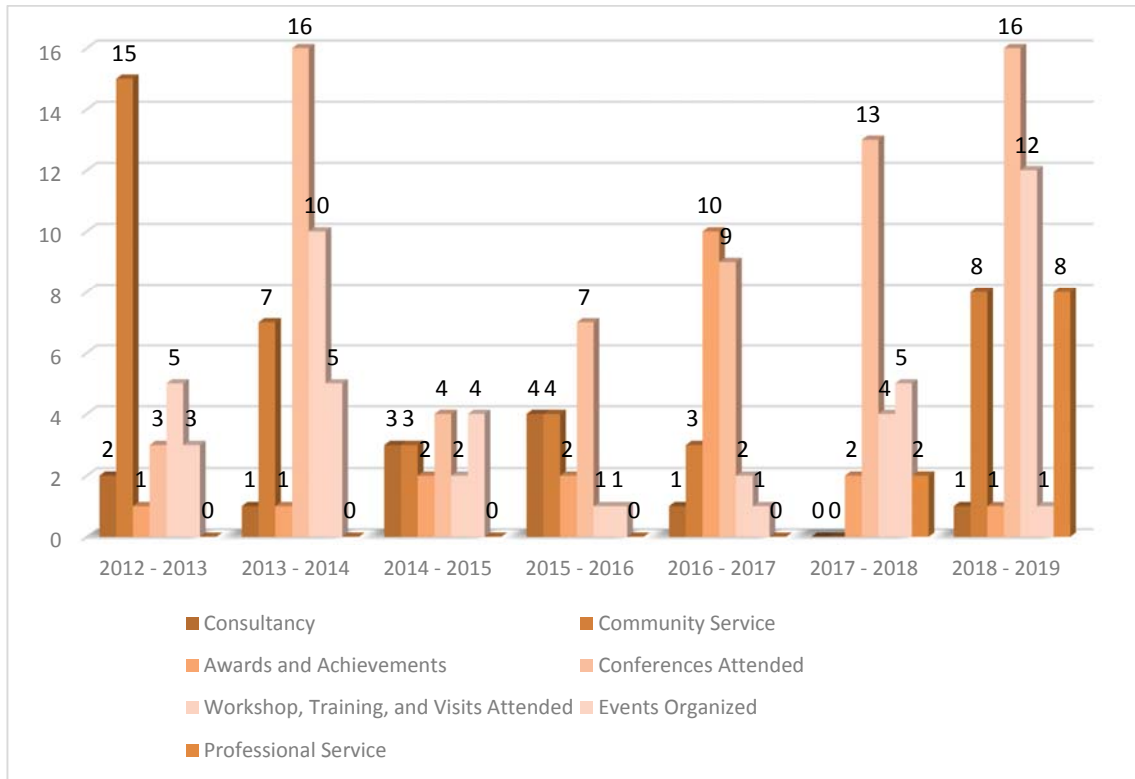


Figure 20: Faculty Activities in 2012-2019.

Appendix A1: List of Publications

Journal Papers

Journal Publications

1. **Al-Ansari, M. S.**, Afzal, M. S., Simplified Irregular Beam Analysis and Design, Civil Engineering Journal 5 (7), 1577-1589, 2019 (Date of publication: 21st July 2019)
2. Taqa, A. G. A., **Al-Ansari, M.**, Senouci, A., Hassan, M. M., Shaat, A., Mohsen, M. O., Characterization of self-healing efficiency of calcium nitrate microcapsules for concrete applications, International Journal of Microstructure and Materials Properties 14 (3), 238-255, 2019 (Date of publication: 21st May 2019)
3. **Al-Ansari, M.S.**, Afzal, M. S., Simplified Uniaxial Column Interaction Charts, American Journal of Engineering Research (AJER), 9 (4), 241-249, 2019 (Date of Publication: 14th April 2019)

4. **Al-Ansari, M.S.**, Afzal, M. S., Simplified Irregular Column Analysis by Equivalent Square Method, Journal of Structural Engineering & Applied Mechanics, 2(1), 36-46, 20-19 (Date of publication: 30th March 2019)
5. **Al-Ansari, M.S.**, Afzal, M. S., Regular and Irregular Plate Deflection Analysis using Matrix Method, IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE),16(1), 24-40, 2019 (Date of publication: 12th February 2019)
6. **Al-Ansari, M.S.**, Afzal, M. S., Mathcad: Teaching and Learning Tool for Biaxial Reinforced Column Design, IOSR Journal of Engineering (IOSRJEN), 9(2), 43-52, 2019 (Date of publication: 12th February 2019)
7. **Al-Ansari, M. S.**, Afzal, M. S., Shell Roof of Tall Buildings in Earthquake Zones, Open Journal of Earthquake Research 8 (04), 223, 2019 (Date of publication: 17th October 2019)
8. **Al-Ansari, M.**, Abu Taqa, A. G., Senouci, A., Hassan, M. M., Shaat, A., Effect of calcium nitrate healing microcapsules on concrete strength and air permeability, Magazine of Concrete Research, 71(4), 195-206, 2019 (Date of publication: 1st February 2019)
9. Mohsen, M. O., **Al Ansari, M. S.**, Taha, R., **Al Nuaimi, N.**, Taqa, A. A., Carbon nanotube effect on the ductility, flexural strength, and permeability of concrete, Journal of Nanomaterials, 2019, Article no. 6490984, 2019 (Date of publication: 7th October 2019)
10. Attia, K., **Alnahhal, W.**, Elrefai, A., Rihan, Y., Flexural behavior of basalt fiber-reinforced concrete slab strips reinforced with BFRP and GFRP bars, Composite Structures 211, 1-12, 2018 (Date of publication: 1st March 2019)
11. **Alnahhal, W.**, Taha, R., **Alnuaimi, N.**, Al-Hamrani, A., Properties of fiber reinforced concrete made with discarded materials, Magazine of Concrete Research, 71(3), 152-162, 2019 (Date of publication: 1st February 2019)
12. Haque, A., Ghachi, R. F., **Alnahhal, W.**, Aref, A., Shim, J., Hybrid Split Hopkinson Pressure Bar to Identify Impulse-dependent Wave Characteristics of Viscoelastic Phononic Crystals, Experimental Mechanics 59(1), 2019 (Date of publication: 15th January 2019)
13. **Alnahhal, W.**, Aref, A., Numerical Evaluation of Dynamic Response by Using Modified Newmark's Method, Jordan Journal of Civil Engineering 13 (1), 2019 (Date of publication: January, 2019)
14. Ghachi, R. F., **Alnahhal, W. I.**, Haque, A. B. M., Shim, J. M., Aref, A., Flexural Vibration Attenuation Properties of Phononic Crystals, Key Engineering Materials 821, 414-418, 2019 (Date of publication: September 2019)
15. Sohail, M. G., Salih, M., **Alnuaimi, N. A.**, Kahraman, R., Corrosion performance of mild steel

and epoxy coated rebar in concrete under simulated harsh environment, *International Journal of Building Pathology and Adaptation*, (Date of publication: 14th October, 2019)

16. Mohanakrishna, G., **R. I. Al-Raoush**, Ibrahim M. Abu-Reesh, and Deepak Pant, A microbial fuel cell configured for the remediation of recalcitrant pollutants in soil environment, *RSC Advances*, 71, 41409–41418, 2019
17. Jongwon Jung, Hongsig Kang, Shuang Cindy Cao, **R. I. Al-Raoush**, Khalid Alshibli, and Joo Yong Lee, Effects of Fine-Grained Particles' Migration and Clogging in Porous Media on Gas Production from Hydrate-Bearing Sediments, *Geofluids*, Article ID 5061216, 2019
18. Mohanakrishna, G., **R. I. Al-Raoush**, I. M. Abu-Reesh, K. Aljami, Removal of petroleum hydrocarbons and sulfates from produced water using different bioelectrochemical reactor configurations, *Science of The Total Environment*, 665, 820-827, 2019
19. Malik, J., Kiranyaz, S., **Al-Raoush, R. I.**, Monga, O., Garnier, P., Fofou, S., Bouras, A., Iosifidis, A., Gabbouj, M., Baveye, P. C., 3D Quantum Cuts for Automatic Segmentation of Porous Media in Tomography Images, arXiv preprint, arXiv:1904.04412, (Date of publication: 9th April 2019)
20. Amirrahmat, S., Druckrey, A. M., Alshibli, K. A., **Al-Raoush, R. I.**, Micro Shear Bands: Precursor for Strain Localization in Sheared Granular Materials, *Journal of Geotechnical and Geoenvironmental Engineering* 145 (2), 04018104, 2018 (Date of publication: 1st February 2019)
21. Wakjira, T. G., **Ebead, U.**, Experimental and analytical study on strengthening of reinforced concrete T-beams in shear using steel reinforced grout (SRG), *Composites Part B: Engineering*, 107368, 2019 (Date of publication: 15th November 2019)
22. Suraneni, P., Nanni, A., **Ebead, U.**, Hosseinzadeh, N., Hydration, Strength, and Shrinkage of Cementitious Materials Mixed with Simulated Desalination Brine, *Advances in Civil Engineering Materials* 8 (2), 2019 (Date of publication: 1st August 2019)
23. Wakjira, T. G., **Ebead, U.**, Internal transverse reinforcement configuration effect of EB/NSE-FRCM T shear strengthening of RC deep beams, *Composites Part B-Engineering* 166, 758-772, 2019 (Date of publication: 1st June 2019)
24. Du, X., **Ebead, U.**, Sabah, S., Ma, J., **Naji, K. K.**, Engineering Students' Approaches to Learning and Views on Collaboration: How do both evolve in a PBL Environment and What are their Contributing and Constraining Factors? *EURASIA Journal of Mathematics, Science and Technology Education* 15, 11, 2019 (Date of publication: 27th May 2019)
25. **Ebead, U.**, Younis, A., Pull-off characterization of FRCM/Concrete interface, *Composites Part B-Engineering* 165, 545-553, 2019 (Date of publication: 15th May 2019)

26. Montanari, L., Suraneni, P., Tsui-Chang, M., Khatibmasjedi, M., **Ebead, U.**, Weiss, J., Nanni, A., Hydration, Pore Solution, and Porosity of Cementitious Pastes Made with Seawater, *Journal of Materials in Civil Engineering* 31 (8), 04019154, 2019 (Date of publication: 1st August 2019)
27. **Ebead, U.**, El-Sherif, H., Near surface embedded-FRCM for flexural strengthening of reinforced concrete beams, *Construction and Building Materials* (204), 166-176, 2019 (Date of publication: 20th April 2019)
28. **Ebead, U.**, El Refai, A., Shrestha, K. , Nanni, A., Soffit and U-Wrap Fabric-Reinforced Cementitious Matrix Strengthening for Reinforced Concrete Beams, *ACI Structural Journal* 116(2), 267-278, 2019 (Date of publication: 1st March 2019)
29. Wakjira, T. G., **Ebead, U.**, A shear design model for RC beams strengthened with fabric reinforced cementitious matrix, *Engineering Structures* 200, 109698, 2019 (Date of publication: 1st December 2019)
30. **Eid, H. T.**, Al-Nohmi, N. M., Wijewickreme, D., Amarasinghe, R. S., Drained Peak and Residual Interface Shear Strengths of Fine-Grained Soils for Pipeline Geotechnics, *Journal of Geotechnical and Geoenvironmental Engineering* 145 (10), 06019010, 2019 (Date of publication: 1st October 2019)
31. Gregory, A., Lau, D.H., Girolami, M., Butler, L., **Elshafie, M.**, The synthesis of data from instrumented structures and physics-based models via Gaussian processes, *Journal of Computational Physics*, 392, 248-265, 2019, (Date of publication: 1st September 2019)
32. Gue, C. Y., **Elshafie, M. Z. E. B.**, Development of a three-dimensional staged volume loss tunnelling method in the centrifuge, *International Journal of Physical Modelling in Geotechnics*, 19(6), 275-285, 2019 (Date of publication: 1st November 2019)
33. Xu, J., Butler, L. J., **Elshafie, M. Z. E. B.**, Experimental and numerical investigation of the performance of self-sensing concrete sleepers, *Structural Health Monitoring*, 1475921719834506, 2019, (Date of publication: 15th March 2019)
34. **Gunduz, M.**, Alfar, M., Integration of Innovation through Analytical Hierarchy Process (AHP) in Project Management and Planning, *Technological and Economic Development of Economy* 25 (2), 258-276 (Date of publication: 19th February 2019)
35. **Hawari, A. H.**, Larbi, B., Alkhatib, A., Yasir, A. T., Du, F., Baune, M., Thöming, J., Impact of aeration rate and dielectrophoretic force on fouling suppression in submerged membrane bioreactors, *Chemical Engineering and Processing-Process Intensification* 142, 107565, 2019 (Date of publication: 1st August 2019)
36. **Hawari, A. H.**, Larbi, B. , Alkhatib, A., Du,F., Baune, M., Thöming, j., Insulator-based

- dielectrophoresis for fouling suppression in submerged membranes bioreactors: Impact of insulators shape and dimensions, *Separation and Purification Technology* (213), 507-514, 2019 (Date of publication: 15th April 2019)
37. Ibrar I. , Naji O., Sharif A., Malekizadeh A., **Hawari A.**, Alanezi A., Altaee A., A Review of Fouling Mechanisms, Control Strategies and Real-Time Fouling Monitoring Techniques in Forward Osmosis, *Water*, 11, 695, 2019 (Date of publication: 4th April 2019)
 38. Thabit, M. S. , **Hawari, A. H.**, Ammar, M. H., Zaidi, S., Zaragoza, G., Altaee, A., Evaluation of forward osmosis as a pretreatment process for multi stage flash seawater desalination, *Desalination* (461), 22-29, 2019 (Date of publication: 1st July 2019)
 39. Elmasry, M., Zayed, T., **Hawari, A.**, Multi-Objective Optimization Model for Inspection Scheduling of Sewer Pipelines, *Journal of Construction Engineering and Management* (145), 2018 (Date of publication: 1st February 2019)
 40. Hafiz, M. A., **Hawari, A. H.**, Altaee, A., A hybrid forward osmosis/reverse osmosis process for the supply of fertilizing solution from treated wastewater, *Journal of Water Process Engineering*, 32, Article no. 100975, 2019 (Date of publication: December 2019)
 41. Al Hawli, B., Benamor, A., **Hawari, A. H.**, A hybrid electro-coagulation/forward osmosis system for treatment of produced water, *Chemical Engineering and Processing - Process Intensification*, 143, Article no. 107621, 2019 (Date of publication: September 2019)
 42. Zaidi, S. J., Fadhillah, F., Saleem, H., **Hawari, A.**, Benamor, A., Organically Modified Nanoclay Filled Thin-Film Nanocomposite Membranes for Reverse Osmosis Application, *Materials*, 12 (22), 3803, 2019 (Date of publication: 19th November 2019)
 43. Ntotsios, E., Thompson, D. J., **Hussein, M. F. M.**, A comparison of ground vibration due to ballasted and slab tracks, *Transportation Geotechnics*, 21, 100256, 2019 (Date of publication: 1st December 2019)
 44. Muhammad, Z., Reynolds, R., Avci, O., **Hussein, M.**, Review of pedestrian load models for vibration serviceability assessment of floor structures, *Vibration* 2 (1), 1-24, 2019, (Date of publication: March 2019)
 45. Alabbasi, Y., **Hussein, M.**, Large-scale triaxial and box testing on railroad ballast: a review, *SN Applied Sciences* 1 (12), 1592, 2019 (Date of publication: December 2019)
 46. **Shaaban, K.**, Khan, M. A., Hamila, R., Ghanim, M., A Strategy for Emergency Vehicle Preemption and Route Selection, *Arabian Journal for Science and Engineering*, 44(10), 8905-8913, 2019 (Date of publication: 1st October 2019)
 47. Ghanim, M., **Shaaban, K.**, Estimating Turning Movements at Signalized Intersections Using

Artificial Neural Networks, IEEE Transactions on Intelligent Transportation Systems, 20(5), 1828-1836, 2019 (Date of publication: 5th May 2019)

48. **Shaaban, K.**, Self-Report and Observational Assessment and Investigation of Seat Belt Use among Young Drivers and Passengers: The Case of Qatar, Arabian Journal for Science and Engineering 44(5),4441-4451, 2019 (Date of publication: 1st May 2019)
49. **Shaaban, K.**, Analysis of Pedestrian Crossing Speeds at Signalized Intersections in Qatar, Arabian Journal for Science and Engineering 44(5), 4467-4476, 2019 (Date of publication: 1st May 2019)
50. Ghanim, M. S., **Shaaban, K.**, A Case Study for Surrogate Safety Assessment Model in Predicting Real-Life Conflicts, Arabian Journal for Science and Engineering 44(5), 4225-4231, 2019 (Date of publication: 1st May 2019)
51. **Shaaban, K.**, Drivers' Perceptions of Smartphone Applications for Real-Time Route Planning and Distracted Driving Prevention, Journal of Advanced Transportation (2019), 2019 (Date of publication: 11th March 2019)
52. **Shaaban, K.**, Abou-Senna, H., Elnashar, D. M., Radwan, E., Assessing the impact of converting roundabouts to traffic signals on vehicle emissions along an urban arterial corridor in Qatar, Journal of the Air & Waste Management Association 69(2), 178-191, 2019 (Date of publication: 1st February 2019)
53. Wang, B., **Shaaban, K.**, Kim, I., Reveal the hidden layer via entity embedding in traffic prediction, Procedia Computer Science 151, 163-170, 2019 (Date of publication: 1st January 2019)
54. Becheur, I., Guizani, H., **Shaaban, K.**, Belief in fate and self-efficacy in road safety advertising based on guilt: An explanation based on negotiable fate, Australasian Marketing Journal (AMJ), 27(4), 233-241, 2019 (Date of publication: November 2019)
55. **Shaaban, K.**, Maher, A., Singhapakdi, A., Effect of vehicle safety recalls on the perception towards other vehicles from the same country of origin, Journal of Traffic and Transportation Engineering (English Edition), 6(5), 493-503, 2019 (Date of publication: October 2019)
56. **Shaaban, K.**, Assessing sidewalk and corridor walkability in developing countries, Sustainability 11 (14), 3865, 2019 (16th July 2019)
57. **Shaaban, K.**, Abdur-Rouf, K., Development, Validation, and Application of School Audit Tool (SAT): An Effective Instrument for Assessing Traffic Safety and Operation around Schools, Sustainability 11 (22), 6438, 2019, (Date of publication: 15th November 2019)
58. Sadek, H., Sadeq, M., Masad, E., Al-Khalid, H., **Sirin, O.**, Probabilistic Viscoelastic Continuum

Damage Analysis of Fatigue Life of Warm-Mix Asphalt, Journal of Transportation Engineering, Part B: Pavements 145 (3), 04019024, 2019 (Date of publication: 1st September 2019)

59. Arifuzzaman, M., Gazder, U., Alam, M. S., **Sirin, O.**, Mamun, A. A., Modelling of Asphalt's Adhesive Behaviour Using Classification and Regression Tree (CART) Analysis, Computational Intelligence and Neuroscience, 2019 (Date of publication: 15th August 2019)
60. **Sirin, O.**, Paul, D. K., Kassem, E., Ohiduzzaman, M., Evaluation of Short-Term Aging Protocol for Asphalt Mixtures, Applied Sciences 9 (14), 2783, 2019 (Date of publication: 10th July 2019)
61. Hassan, W., Kassem, E., Al-Assi, M., **Sirin, O.**, Ohiduzzaman, M., Acoustic Absorption Analysis and Modeling of Asphalt Mixtures, Journal of Testing and Evaluation 47 (4), 2385-2404, 2019 (Date of publication: 20th February 2019)
62. Kassem, E., Khan, M. S., Katukuri, S., **Sirin, O.**, Muftah, A., Bayomy, F., Retarding aging of asphalt binders using antioxidant additives and copolymers, International Journal of Pavement Engineering, 20(10), 1154-1169, 2019 (Date of publication: 2019)
63. **Sirin, O.**, Paul, D. K., Khan, M. S., Kassem, E., Darabi, M. K., Effect of Aging on Viscoelastic Properties of Asphalt Mixtures, Journal of Transportation Engineering Part B: Pavements, 145(4), Article No. 04019034, 2019 (Date of publication: 1 December 2019)

Top Tier Journals

Table 7: List of Top Tier Journals out of the publications

No.	Journal	Number of publications
1	Magazine of Concrete Research	2
2	Composite Structures	1
3	Experimental Mechanics	1
4	Geofluids	1
5	Science of the Total Environment	1
6	Journal of Geotechnical and Geoenvironmental Engineering	2
7	Composites Part B: Engineering	3
8	Journal of Materials in Civil Engineering	1
9	Construction and Building Materials	1
10	Engineering Structures	1
11	Structural Health Monitoring	1
12	Technological and Economic Development of Economy	1
13	Chemical Engineering and Processing-Process Intensification	2
14	Separation and Purification Technology	1
15	Water	1
16	Desalination	1
17	Journal of Construction Engineering and Management	1

18	Transportation Geotechnics	1
19	IEEE Transactions on Intelligent Transportation Systems	1
20	Journal of Advanced Transportation	1
21	International Journal of Pavement Engineering	1
22	Computational Intelligence and Neuroscience	1
23	Journal of Computational Physics	1
24	Journal of Water Process Engineering	1
25	Materials	1
26	Sustainability	2
27	RSC Advances	1
	Total	33

Second Tier Journals

Table 8: List of Second Tier Journals out of the publications

No.	Journal	Number of publications
1	ACI Structural Journal	1
2	Arabian Journal for Science and Engineering	4
3	Journal of the Air & Waste Management Association	1
4	Journal of Testing and Evaluation	1
5	Journal of Nanomaterials	1
6	International Journal of Physical Modelling in Geotechnics	1
7	Journal of Transportation Engineering, Part B: Pavements	2
	Total	11

Other Journals

Table 9: List of other Journals out of the publications

No.	Journal	Number of publications
1	Civil Engineering Journal	1
2	International Journal of Microstructure and Materials Properties	1
3	American Journal of Engineering Research	1
4	Journal of Structural Engineering & Applied Mechanics	1
5	IOSR Journal of Mechanical and Civil Engineering	1
6	IOSR Journal of Engineering	1
7	Jordan Journal of Civil Engineering	1
8	International Journal of Building Pathology and Adaptation	1
9	arXiv preprint	1
10	Advances in Civil Engineering Materials	1
11	EURASIA Journal of Mathematics, Science and Technology Education	1
12	Vibration	1

13	Procedia Computer Science	1
14	Australasian Marketing Journal	1
15	Journal of Traffic and Transportation Engineering	1
16	Applied Sciences	1
17	Open Journal of Earthquake Research	1
18	Key Engineering Materials	1
19	SN Applied Sciences	1
	Total	19

Conference Publications

1. Hannun, J. A., **Al-Raoush, R. I.**, Jarrar, Z. A., Alshibli, K., & Jung, J. Fines and Confinement Influence on CO₂ Flow in Sand Using Pore Networks of Micro-CT, AGU Fall Meeting 2019, American Geophysical Union, San Francisco, CA, USA, (9-13 December, 2019)
2. Jarrar, Z. A., **Al-Raoush, R. I.**, Alshibli, K., & Jung, J. 3D Study of Permeability and Tortuosity Evolution of Gas Hydrate using Synchrotron Computed Tomography and Pore Network Modeling, AGU Fall Meeting 2019, American Geophysical Union, San Francisco, CA, USA, (9-13 December, 2019)
3. Ngueleu, S. K., Rezanezhad, F., Shafieiyoun, S., **Al-Raoush, R. I.**, & Cappellen, P. V. Methanogenic Potential in a Semi-Arid Coastal Soil: Implications for Hydrocarbon Biodegradation, AGU Fall Meeting 2019, American Geophysical Union, San Francisco, CA, USA, (9-13 December, 2019)
4. Shafieiyoun, S., **Al-Raoush, R. I.**, Ismail, R. E., Ngueleu, S. K., Rezanezhad, F., & Cappellen, P. V., Influence of Salinity and NAPL Composition on Sulfate Application in the Contaminated Subsurface Systems, AGU Fall Meeting 2019, American Geophysical Union, San Francisco, CA, USA, (9-13 December, 2019)
5. **Al-Raoush, R. I.**, Hannun, J. A., Jarrar, Z. A., Alshibli, K., & Jung, J. Grouping Minimum REV of Porosity and Tortuosity based on Descriptors of Sand Grains, Third EAGE WIPIC Workshop: Reservoir Management in Carbonates, European Association of Geoscientists and Engineers, Doha, Qatar, (18-20 November, 2019)
6. Hannun, J. A., **Al-Raoush, R. I.**, Jarrar, Z. A., Alshibli, K., & Jung, J. Pore Networks to Characterize Formation Damage Due to Fines at Varied Confinement and Sand Shape, Third EAGE WIPIC Workshop: Reservoir Management in Carbonates, European Association of Geoscientists and Engineers, Doha, Qatar, (18-20 November, 2019)
7. Nishad, S., **Al-Raoush, R. I.** Pore-Scale Mechanisms Associated with Permeability Impairment in Porous Media: a Micromodel Study, Third EAGE WIPIC Workshop: Reservoir

Management in Carbonates, European Association of Geoscientists and Engineers, Doha, Qatar, (18-20 November, 2019)

8. Jarrar, Z. A., **Al-Raoush, R. I.**, Alshibli, K., Hannun, J. A., & Jung, J. Hydrate Surface Area Measurements During Dissociation using Dynamic 3D Synchrotron Computed Tomography, Third EAGE WIPIC Workshop: Reservoir Management in Carbonates, European Association of Geoscientists and Engineers, Doha, Qatar, (18-20 November, 2019)
9. Mohanakrishna, G., **Al-Raoush, R. I.**, & Abu-Reesh, I. M. Microbial Fuel Cells for Bioelectrogenesis and Bioelectrochemical Treatment of Petroleum Based Hydrocarbons Contaminated Soils, 4th International Conference on Alternative Fuels, Energy and Environment (ICAFEE): Future and Challenges, Feng Chia University, Taichung, Taiwan, (18th -21st October, 2019)
10. **Al-Raoush, R. I.**, Mohanakrishna, G., & Abu-Reesh, I. M. Integrating electrochemical and bioelectrochemical systems for an energetically sustainable treatment of produced water (PW), 4th International Conference on Alternative Fuels, Energy and Environment (ICAFEE): Future and Challenges, Feng Chia University, Taichung, Taiwan, (18th -21st October, 2019)
11. Mohanakrishna, G., Abu-Reesh, I. M., **Al-Raoush, R. I.**, & Kondaveeti, S. Wastewater and Pollutants Generating from Petroleum Industries for Value Addition through Bioelectrochemical Systems (BES), 4th International Conference on Alternative Fuels, Energy and Environment (ICAFEE): Future and Challenges, Feng Chia University, Taichung, Taiwan, (18th -21st October, 2019)
12. **Al-Raoush, R. I.**, Mohanakrishna, G., & Abu-Reesh, I. M. Bioanodic activity stimulation by simple organics (sewage and acetate) addition in soil microenvironment for recalcitrant pollutants degradation, 4th International Conference on Alternative Fuels, Energy and Environment (ICAFEE): Future and Challenges, Feng Chia University, Taichung, Taiwan, (18th -21st October, 2019)
13. **Al-Raoush, R. I.**, Hannun, J. A., Jarrar, Z. A., Alshibli, K., & Jung, J. Impact of Fines Type On Gas Flow Using 3D Micro-Computed Tomography, SPE Kuwait Oil & Gas Show and Conference, Society of Petroleum Engineers, Kuwait City, Kuwait, (13-16 October, 2019)
14. Hannun, J. A., **Al-Raoush, R. I.**, Jarrar, Z. A., Alshibli, K. A., & Jung, J., Fines and Gas Flow Influence on Pore Morphology in Saturated Sand using Micro-Computed Tomography, 8th Global Conference on Global Warming, Doha, Qatar, (22-25 April, 2019)
15. Wakjira, T., **Ebead, U.**, A strut and tie model for FRCC-strengthened reinforced concrete deep beams, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)

16. Wakjira, T., **Ebead, U.**, Shear behavior of RC beams strengthened with different types of FRCCM: Effect of stirrups' configuration, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)
17. Younis, A., **Ebead, U.**, Suraneni, P., Nanni, A., Microstructure investigation of seawater vs. freshwater cement pastes, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)
18. Younis, A., **Ebead, U.**, Suraneni, P., Nanni, A., Strength, shrinkage, and permeability Performance of seawater concrete, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)
19. Younis, A., **Ebead, U.**, Bond and shear-strengthening Performance of FRCCM composites, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)
20. **Ebead, U.**, El-Sherif, H., Strengthening of RC beams using near Surface embedded-FRCCM, Interdependence between Structural Engineering and Construction Management, ISEC 2019, Chicago, Illinois, United States, (May 20-25, 2019)
21. Torisu, S. S., Faustin, N. E., **Elshafie, M.**, Black, M., Soga, K., Mair, R. J., Monitoring of Shaft Excavations in Clay, International Conference on Smart Infrastructure and Construction 2019 (ICSIC), Churchill College, Cambridge, London, 343-349, 2019 (Date of publication: July 8-10, 2019)
22. Butler, L. J., Lau, D. H., Gregory, A., Girolami, M., **Elshafie, M. Z. E. B.**, Introducing Data-Centric Engineering to Instrumented Infrastructure, International Conference on Smart Infrastructure and Construction 2019 (ICSIC), Churchill College, Cambridge, London, 343-349, 2019 (July 8-10, 2019)
23. Sun, Q., **Elshafie, M. Z. E. B.**, A new thermal integrity method for pile anomaly detection, 12th International Workshop on Structural Health Monitoring, Stanford, California, USA (September 10-12, 2019)
24. **Gunduz, M.**, Al-Ruwaili, A., Tendering Process Improvement with Prototype Designs Implementation, ICCSE 2019: Fourth International Conference On Civil And Structural Engineering, phuket, Thailand, (14 - 16th June 2019)
25. **Hawari A.**, Ammar M. H., Yasir A., Zaidi S., Altaee A., Pretreatment of seawater using forward osmosis for multistage flash desalination, 2nd International Conference on Applied Research in Engineering, Science and Technology, ICAREST, Brussels, Belgium (June 5–

- 7, 2019)
26. Ammar M. H., **Hawari A.**, Altaee A., Production of an engineered fertilizing solution from treated wastewater using forward osmosis, 2nd International Conference on Applied Research in Engineering, Science and Technology, ICAREST, Brussels, Belgium (June 5–7, 2019)
 27. Kaddoura, K., Zayed, T., Atabay, S., **Hawari, A.**, Automated Detection Tool for Deformed Buried Conduits, 3rd International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques, ICIMART 2019, Sharjah, United Arab Emirates, (March 5-7, 2019)
 28. **Hawari, A. H.**, Alkhatib, A., Benamor, A., High Membrane Flux in Membrane Bioreactors (MBRs) Using an Optimized Aeration Process, Science for Sustainable Development 2019 Conference (SSD2019), Qatar University, Doha, Qatar, (4 – 5th November 2019)
 29. Alabbasi, Y., **Hussein, M.**, INVESTIGATING THE BEHAVIOR OF RAILROAD BALLAST IN A BOX TEST UNDER SINUSOIDAL & SIMULATED TRAIN LOADING, 7th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Crete, Greece, (24–26th June 2019)
 30. Alabbasi, S., **Hussein, M.F.M.**, Abdeljaber, O., Avci, O., Investigating the Dynamics of a special type of a floating-slab track, the 7th International Conference on Computational methods in Structural Dynamics and Earthquake Engineering (Compdyn), Crete, Greece, (24–26th June 2019)
 31. **Shaaban, K.**, Abdel-Warith, K., Haddock, J., Using Pavements to Generate Electricity, The 10th International Conference on Ambient Systems, Networks and Technologies (April 29 - May 2, 2019)
 32. **Shaaban, K.**, Practical Teaching Strategies for Engineering Education, Education and Instructional Technology Conference: Challenges & Opportunities, Doha, Qatar, (16-17th March, 2019)
 33. **Sirin, O.**, Ohiduzzaman, M., Kassem, E., Evaluation of Noise Performance of Multi-Lane Highways in the State of Qatar, 3rd International Conference on Architecture and Civil Engineering, Kuala Lumpur, Malaysia, (26-27th June 2019).

Top Tier Conferences (Indexed in Web of Science)

Table 10: List of Top Tier Conferences out of the publications

No	Conference	Number of publications
1	AGU Fall meeting	4
	Total	4

Second Tier Conferences (Indexed in Scopus only)

Table 11: List of second Tier Conferences out of the publications

No	Conference	Number of publications
1	ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering	1
2	International Conference on Alternative Fuels, Energy and Environment (ICAFEE): Future and Challenges	4
3	SPE Kuwait Oil & Gas Show and Conference, Society of Petroleum Engineers	1
4	International Conference on Smart Infrastructure and Construction	2
5	International Workshop on Structural Health Monitoring	1
6	International Conference on Computational methods in Structural Dynamics and Earthquake Engineering (COMPDYN)	1
7	International Conference on Ambient Systems, Networks and Technologies	1
8	International Conference on Architecture and Civil Engineering	1
	Total	12

Others

Table 12: List of other Conferences out of the publications

No	Conference	Number of publications
1	EAGE WIPIC Workshop: Reservoir Management in Carbonates	4
2	International Conference on Applied Research in Engineering, Science and Technology, ICAREST	2
4	International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques, ICIMART	1
5	Interdependence between Structural Engineering and Construction Management, ISEC	6
6	International Conference On Civil And Structural Engineering,	1
7	Global Conference on Global Warming	1
8	Science for Sustainable Development	1
9	Education and Instructional Technology Conference: Challenges & Opportunities	1

	Total	17
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Book Chapters

1. Talbot, J., Hunt, H., **Hussein, M.**, Computational Tools for Predicting Ground Vibration from Railways, ICE Publishing, 2019
2. Alaa Hawari, Ali Altaee, Adnan Alhathal Alanezi, Radhi Alazmi, Alaa H. Hawari, and Claudio Mascialino, Chapter 6: Effect of the Draw Solution on the Efficiency of Two-Stage FO-RO/BWRO for Seawater and Brackish Water Desalination, Book Title, Water Management: Social and Technological perspective. (1st edition), (2019), CRC Press, Taylor & Francis Group, ISBN 9781138067240

Patents

Nil

Technical Reports

Riyadh Alraoush, Four Progress Reports for QNRF (NPRP Grants).

Editorials and Essays

Nil

Appendix A2- Seminars – Public Lectures –
Short Courses

Seminars and Public Lectures Delivered by Departmental Faculty Members Inside Qatar University

Usama Ebead:

- PBL Individual Efforts Assessment using YouTube Presentations. Center for Excellence in Teaching and Learning Workshop, Monday, March 18, 2019 11:00 AM-11:45 AM, Center for Excellence in Teaching and Learning (CETL) Building C02, Room 201.
- Civil Engineering Pioneer PBL Application, Center for Excellence in Teaching and Learning Workshop, Thursday, January 10, 2019 9:45 AM-10:35 AM, College of Medicine (H12), Male Section - Room: 171.

Short Course Delivered by Departmental Faculty Members

- Mohammed Elshafie, Training to Ashghal Qatari Engineers – Project delivery, asset management and maintenance –held at Ashghal offices between 28th – 30th November 2019 (inclusive)

Seminars and Public Lectures Attended by Departmental Faculty Members

Mohammed Hussein:

- Seminar on A Novel Hybrid Sliding-Rocking Post-Tensioned System for Accelerated Bridge Construction, CAE Seminar, Qatar University, 9 April 2019.
- Workshop on 4th Industry-Education Workshop titled “Impact of the industry 4.0 transformation on Engineering Education”, Qatar University, 17 March 2019.
- Seminar on Structural Engineering and Materials Applications, by Prof. Halil Sezen, Qatar University, 28 February 2019.
- Workshop on Smart City Security Workshop, Kindi Seminar, Qatar University, 11 February 2019.
- Qatar Sustainability Summit, St. Regis, Doha, Qatar, 27 October 2019.
- Ashghal Workshop, Application of Asphalt Nanotechnology Additives with RAP mixes and Binder modifiers, Ashghal Tower 3, 9 July 2019.
- Ashghal Workshop, Best practice in avoiding formal disputes, Ashghal Tower 3, 16 June 2019.

- Establishing the Lean Construction Institute, Lusail Technical Building, Qatari Diar, QATAR, 11 July 2019.
- Engineers Australia Centenary & Qatar Chapter's 4th Anniversary Celebration, W Hotel, Doha, Qatar, 6 November 2019.
- ICE Ceremony, St Regis Hotel, Doha, Qatar, 7 October 2019.

Usama Ebead:

- Title: Maximizing The Value and Impact of Having Your Class Observed. November 10, 2019, The Center for Excellence in Teaching and Learning (CETL) at Qatar University.
- Title: Succeeding at Student Evaluations of Teaching. November 3, 2019, The Center for Excellence in Teaching and Learning (CETL) at Qatar University
- Title: The Scholarship of Educational Leadership in Research-intensive University Contexts: Strategic Inquiry, Evidence-based Practice and Dissemination, October 31, 2019, The Center for Excellence in Teaching and Learning (CETL) at Qatar University

Seminars and Public Lectures Delivered by Visiting Academics and Professionals

- Prof. Amjad Aref, University at Buffalo (UB), A NOVEL HYBRID SLIDING-ROCKING POST-TENSIONED SYSTEM FOR ACCELERATED BRIDGE CONSTRUCTION, APRIL 9, 2019, College of Engineering, Qatar University.
- See also under Seminars & Trainings the list of professionals invited as part of the Civil Engineering workshops.

Invited Public Lectures/Keynote Speakers

- Alaa Al Hawari, keynote speaker at the Science for Sustainable Development 2019 Conference (SSD2019), 4th – 5th of November 2019, Qatar University, Doha, Qatar.

(Note: In this appendix, "Professional Development" includes 'conference attended', 'workshops attended', 'workshops given', and 'organized events'.)

Consultancy

- **Hisham Eid**, Type of Consultancy: Interpretation for the failure occurred in the Car-park Ramp at Al-bidda Park: Sponsor: Urbacon Trading & Contracting Company LLC, Doha, Qatar. Date: From 12th March to 12th May, 2019.

Community Service:

- Naji, K., Member of the Ministry of Justice Committee for Professionals Evaluations. Professionals who serve as experts in different areas in the Qatari Courts. March 2018 - December 2019.
- Naji, K., Member of the Qatari National Comm. for Engineering Accreditation and Evaluation. March 2018 - March 2019.
- Alaa Al Hawari, Moderator of the session "Who's Responsible? Teacher or Students" during the 10th Excellence Day held on January 10, 2019, at Qatar University.
- Swap a Book initiative. Alaa Al Hawari has initiated the Swap a Book initiative at the Department of Civil and Architectural Engineering.
- Alaa Al Hawari did a Class observation - Center for Excellence in Teaching and Learning, February 10, 2019
- Alaa Al Hawari was Committee member in putting a bid for the opportunity to host the International Conference of Urban Drainage (ICUD) 2023 in Qatar, May 16, 2019 - May 30, 2019
- Alaa Al Hawari was Guest Speaker in Ministry of Municipality and Environment to discuss research opportunities and how the research team at Qatar University can assist in solving problems related to drainage system design in Doha, April 22, 2019.
- Alaa Al Hawari was Guest Speaker in Public Works Authority to discuss potential research opportunities. I have presented a presentation to people in Ashghal to show case the capability of the research team in Qatar University to solve problems related to wastewater treatment in Qatar, February 26, 2019.

Professional Service

Hisham Eid:

- Review papers for the following Journals:
ASTM Geotechnical Testing Journal (May, 2019)
Engineering Geology (March 2019)
- Review 6 papers for the International Conference on Civil Infrastructure and Construction (CIC 2020), December, 2019.

Mohammed Elshafie:

- Council Member of the International Society for Structural Health Monitoring and Intelligent Infrastructure (ISHMII).
- Committee Member for the TC204 Conference on Geotechnical Aspects of Underground Construction in Soft Ground (Cambridge 2020).
- Committee Member for Training Proposal for Ashghal, March 11, 2018- Present.

Murat Gunduz:

- Associate Editor for ASCE Journal of Management in Engineering, 2019
- Chair of best paper selection committee, ASCE Journal of Management in Engineering, 18-02-2019

Usama Ebead:

- Assessment and handling of papers in a timely manner, Maintenance of quality through pre-assessment and selection of appropriate reviewers, attract high quality paper submission in ICE Structures and Buildings Journal, London, UK, October 6, 2017 -Present

Teaching and learning

- Khalid Shaaban, CVEN 461, Fall 2019, Video Conferencing
- Wael Alnahhal, CVEN 401, Fall 2019: (Problem Based Learning: “Design Based Learning”)
- Khaled Naji, CVEN 482 “Selected Topics in Construction” was offered for the 2nd time in PBL mode.
- Usama Ebead, used a combination of LBL and PBL in CVEN320 in F2019.

Awards and Achievements

Research awards

Mohammed Elshafie, Joint winner of the American Society of Civil Engineers (ASCE) J. James

R. Croes Medal, 2019 for the paper - "Structural Performance Monitoring using a Dynamic Data-Driven BIM Environment," Journal of Computing in Civil Engineering, May 2018.

Conferences Attended

- Khaled Shaaban, The 10th International Conference on Ambient Systems, Networks and Technologies April 29 - May 2, 2019, presenting and chairing session.
- Conference on Education and Technology "Challenges & Opportunities", March 16-17, 2019, presenting
- Mohammed Elshafie, 12th International Workshop in Structural Health Monitoring - Stanford University – 10th-12th September 2019
- Alaa Al Hawari, attended a seminar "Who's Responsible? Teacher or Students" organized by the Center for Excellence in Teaching and Learning (CETL), January 10, 2019, Qatar University.
- Mohammed Hussein, The 7th International Conference on Computational methods in Structural Dynamics and Earthquake Engineering (Compdyn), Crete, Greece, 24-26 June.
- Okan Sirin, 3rd International Conference on Architecture and Civil Engineering, Kuala Lumpur, Malaysia, 26-27 June 2019 (Paper Presenter).
- Okan Sirin, Conference Participation in "3rd International Conference on Architecture and Civil Engineering (ICACE 2019)" Sigma Research and Consulting, Malaysia, June 26, 2019 - June 27, 2019.
- Okan Sirin, Conference Participation in "International Conf. on Challenges Developing Sustainable Infrastructure", Kuwait University, Kuwait, April 23, 2019 - April 25, 2019.
- Okan Sirin Attended Workshop "Pavement Deterioration – A study in Qatar", QU, Qatar, March 20, 2019
- Okan Sirin Attended Seminar titled "Balance Mix Design of Asphalt Concrete: A Simple Yet Powerful Approach", Texas A&M University at Qatar, Qatar, March 19, 2019.
- Alaa Al Hawari Participated in "High Membrane Flux in Membrane Bioreactors (MBRs) Using an Optimized Aeration Process" Science for Sustainable Development 2019 Conference (SSD2019), Qatar, November 4, 2019 - November 5, 2019
- Alaa Al Hawari attended Workshop "برنامج التطوير المهني للأكاديميين الإداريين - الجودة الأكاديمية" Center for Excellence in Teaching and Learning (CETL), Qatar, October 24, 2019.

- Alaa Al Hawari Participated in "Pretreatment of seawater using forward osmosis for multistage flash desalination" 2nd International Conference on Applied Research in Engineering, Science and Technology, ICAREST, Belgium, June 5, 2019 - June 7, 2019.
- Alaa Al Hawari Participated in "Production of an engineered fertilizing solution from treated wastewater using forward osmosis" 2nd International Conference on Applied Research in Engineering, Science and Technology (ICAREST), Belgium, June 5, 2019 - June 7, 2019.
- Alaa Al Hawari Participated in "Automated Detection Tool for Deformed Buried Conduits" 3rd International Conference on Infrastructure Management, Assessment and Rehabilitation Techniques, ICIMART, United Arab Emirates, March 5, 2019 - March 7, 2019.
- Murat Gunduz attended a seminar "Industry Seminar on Construction Dewatering in Qatar by Barry O'Sullivan" Qatar University, Qatar, February 27, 2019.

Workshop, Training, and Visits Attended

- Hisham Eid, ABET Preparation Workshop, College of Eng. (QU), 10th December 2019, QU.
- Hisham Eid, Learning outcomes assessment process., Office of Academic Quality Assurance, QU, 16th September, 2019
- Alaa Al Hawari attended a workshop on learning outcomes assessment process done by the "Office of Academic Quality Assurance (AQA)", 16th Sept. 2019.
- Alaa Al Hawari attended the CENG ABET Preparation workshop, 10th December 2019.
- Usama Ebead attended "ABET Preparation Workshop", College of Eng. (QU), 10th December 2019, QU.
- Usama Ebead attended ABET Preparation Workshop, Qatar, December 10, 2019.
- Usama Ebead attended "Maximizing the Value and Impact of Having Your Class Observed" Seminar, CETL-QU, Qatar, November 10, 2019
- Usama Ebead attended "Succeeding at Student Evaluations of Teaching" Seminar, CETL-QU, Qatar, November 3, 2019.
- Usama Ebead attended "The Scholarship of Educational Leadership" Workshop, College of Education, QU, Qatar, October 31, 2019.
- Usama Ebead attended Workshop on: 21st Century Learning for Engaging Millennials, Qatar University, Qatar, March 19, 2019 - March 20, 2019.

- Usama Ebead attended “PBL Individual Efforts Assessment using YouTube Presentations” seminar, CETL, Qatar University, Qatar, March 18, 2019.
- Usama Ebead attended 10th CETL Excellence Day “Civil Engineering Pioneer PBL Application” CETL, QU, Qatar, January 10, 2019.

Seminars & Trainings

- CAE Industrial Workshop on Construction Dewatering in QATAR by Barry O’Sullivan (Hydroserv W.L.L), Qatar University, 27 February 2019.
- CAE Industrial Workshop with Engineers Australia on Pavement Deterioration – A study in Qatar by Kanagaraj Muthiah and Simon Wanklyn (BG&E Consulting Engineers LLC), Qatar University, 20 March 2019.
- CAE Industrial Workshop on Modelling Transit Oriented Development interactions on existing metro systems and the need for the design of adequate Structural monitoring system by Dr. Evangelos Astreinidis (Qatar Rail), Qatar University, 17 April 2019.
- CAE Industrial Workshop on Design Review and Approvals process for Transportation Structures by Anil Oruganti and Theodoros Tzaveas (Ashghal), Qatar University, 13 November 2019.
- CAE Industrial Workshop with the Institute of Civil Engineers Qatar on “Why Asset Management shouldn’t work in Qatar, but it does!” by Steve Bird (Stantec), Qatar University, 11 December 2019.
- CAE Industrial Workshop on Challenges in Design-and-Build Project Management in Qatar – Case study of Al Bustan South Project by Ali Kara (Ashghal), Qatar University, 18 September 2019.





Figure 21: Pictures of Workshop on 18th September 2019

Civil Engineering Winter Camp at Qatar University

The Department of Civil and Architectural Engineering organized for the first time the Civil Engineering Winter Camp as one of the activities to attract high school students to study Civil Engineering at Qatar University. The camp was held from the 22nd to the 26th of December 2019 in Ibn Khaldoun Hall. The students taking part in the camp participated in large number of fun-educational activities in Civil Engineering. In the first day, they built a cable-stayed bridge. In the second day, they built sections of railways and experienced the effects of axle profile of the moving wheels on railway tracks. In the third day, they participated in experiments in Geotechnical Engineering showing the failure of buildings on different types of foundations. In the fourth day, they participated in activities in the field of BIM and transportation engineering. In the last day of the camp, the students worked on a designed exercise of surveying to layout points on a ground beside the University Library.





Figure 22: Pictures of Civil Engineering Winter Camp 2019

Workshop, Training, and Visits Delivered

- Mohammed Elshafie, Training to Ashghal Qatari Engineers – Project delivery, asset management and maintenance –held at Ashghal offices between 28th – 30th November 2019 (inclusive)
- Alaa Al Hawari was a part of the CENG Strategy Retreat. Alaa Al Hawari was within the task force related to research in the college. 11th November 2019.
- Usama Ebead was a guest speaker in the workshop titled "Implementing Problem and Project Based Learning in QU aligning alternative assessment methods" 9th OFID day (2018). Qatar, June 2019.
- Usama Ebead was a guest speaker in 10th Excellence Day, Qatar, January 10, 2019.

Events Organized

- Wael Alnahhal organized High-School Wooden Bridge Competition, March 17 & November 11, 2019.

Other Activities

Site Visits

- Khaled Shabban organized site visit for the students in CVEN 461 Traffic Engineering, a full day industry workshop organized by the Ministry of Transport and Communications on September 4, 2019.
- Wael ALNahhal, CVEN320-L02: Site Visit to a construction site on October 21, 2019
- Wael ALNahhal ,CVEN420: Site Visit to a Steel Factory on November 23, 2019
- Usama Ebead, CVEN320-L01: Site Visit to a construction site on October 21, 2019

- Mohammed Elshafie, site visit in collaboration with the Institution of Civil Engineers Qatar to Al Bustan South Project in Doha for CAE students, November 23 2019.

Engineering Week

The Department of Civil and Architectural Engineering was participated in the Engineering Week event conducted on 18th - 20th of February 2019 in the Sports Complex at Qatar University. The event aimed to introduce high school students as well as first year students about the principles and fundamentals of engineering. Each department from CENG had its own booth with different models and activities.

Several models were presented in the Civil Engineering Booth, which attracted many students. A model was presented to highlight the effect of vibration coming from ground rail on bridges as well on the surrounding structures. Another model showed the effect of different vibration frequencies on a plate surface. In addition, the high school students got the chance to participate in fun activities related to Civil Engineering. The booth was very successful in exhibiting the interesting aspects of Civil Engineering and the students were interested to learn more about civil engineering topics.



Figure 23: Pictures of Engineering Week 2019

The Department of Civil and Architectural Engineering outreached for high school students. Visits to Omar Bin Abdulaziz, Al Andalus, Omar Bin Al-Khatab, Khalifa, high schools were organized

during the year 2019. The visits aimed at giving detailed information about the Engineering Programs at Qatar University and to highlight the importance and roles of Civil Engineers in the society to high school students in Qatar.

Appendix-A4-Students Activities

Competitions & Awards

Poster competition

The Senior Design –II Poster Competition was held on 24 April 2019 in front of the Civil and Architectural Engineering Department. Eleven groups participated in this competition. The students presented their posters to external judges. Here are the details of the winners.

Table 13: Details of the Poster competition winners

Position	Students	Title of Project	Primary Supervisor
1 st	Alhassan Mahmoud Moustafa Elsayed Adeeb Nimry Mostafa Hussein	Football stadium roof design	Dr. M. Elshafie
2 nd	Omar Abuiwaili Abdullah Elsherif Omar Shihadah Hossam Hammad Alijla	Design of Olympic Swimming Pool in Doha	Dr. M. Elshafie
3 rd	Hammam Hattab Yousef Abdelrahman Abd El-Rahman Bahloul Hateem Elshaarawi	Design of Doha Eye	Dr. M. Hussein



1st place



2nd place



3rd place

Figure 24: Pictures of Poster Competition 2019

The Senior Design –II (Fall 2019) Poster Competition was held on 20th Nov 2019 in front of Civil and Architectural Engineering Department. Seven groups participated in this competition. The students presented their posters to external judges. Here are the details of the winners.

Table 14: Details of the Poster competition winners

Position	Students	Title of Project	Primary Supervisor
1 st	Fadi Kahil Abdulfattah M. Fawaz Alzeibak Khalid Gamal Mahjoub Mohamed Freh Alsalamah Christian Justine Ramirez Samson	Design of a pedestrian crossing (either a bridge or a tunnel)	Dr. M. Elshafie

2 nd	Javad Kohansal Syed Azlan Amjad Ahmad Ibn Mahmoud Yahia Zakria Alrajjo	Design of GCC rail system with consideration of operation and maintenance	Dr. Hussein
3 rd	Hamza Ghonim Mohammed Aboura Abdalla Aref Khaled Elsafady	Design of a New Interchange in Doha	Dr. Okan Sirin

Senior Design Contest Spring 2019

The Senior Design –II Spring 2019 Contest was held on 1 May 2019 in the College of Engineering. Eleven groups participated in this competition. The students presented their project to the Jury members as well as to Internal and external Examiners. Here are the details of the winners.

Table 15: Details of the Senior Design Contest winners

Position	Students	Title of Project	Primary Supervisor
1 st	Omar Abuiwaili Abdullah Elsherif Omar Shihadah Hossam Hammad Alijla	Desing of an Olympic Swimming Pool in Doha	Dr. M. Elshafie
2 nd	Mutaz Albustami Kamal Alrihawi Zaid Ibraheem Mohammed Deyab	Design of water and sewer distribution network in Doha	Dr. A. Hawari
3 rd	Alhassan Mahmoud Moustafa Elsayed Adeeb Nimry Mostafa Hussein	Football stadium roof design	Dr. M. Elshafie



1st place



2nd place



3rd place

Figure 25: Pictures of Senior Design Contest 2019

The 6th High School Wooden Bridge Competition

The Department of Civil and Architectural Engineering organized the High School Wooden Bridge Competition (HSWBC) to motivate students to join the field of engineering in general and civil engineering in particular. Teams of high school students constructed bridge models using sticks and glue as per the instructions and guidelines provided by the faculty and staff during their visit to the school as part of the outreach program. The competition aimed to equip the secondary school students with main skills of civil engineering and to enable them to test, design and build small bridges of different use. Loads were applied at the center of the bridge on the final day of the competition, which was on 17 March 2019 in the Library Building at Qatar University. The team with the largest load Carrying Capacity Bridge won the first place out of twenty Independent High Schools participated in the competition.



Figure 26: Pictures of 6th High School Wooden Bridge Competition

The 7th High School Wooden Bridge Competition 2019

Organized by the Department of Civil and Architectural Engineering at Qatar University on Monday, November 11, 2019.



Figure 27: Pictures of 7th High School Wooden Bridge 2019

“The Spaghetti-Marshmallow Tower Competition” organized by the Department of Civil and Architectural Engineering at Qatar University.

In this Competition, students need to build the highest possible tower using two bags of spaghetti and three bags of marshmallow during the 7th HSWBC 2019.

Each team composed of three members. The winning team awarded vouchers with a value

of 3000 QR.

“Qatar Steel Hunt Competition- Fall 2019” organized by the Department of Civil and Architectural Engineering at Qatar University. In this competition students’ need to take a Selfie with as many of the structural steel elements as possible inside Qatar (Not at a construction site and adhering to safety).

All submissions were reviewed by the committee members based on the number of correct items found and the quality of photos in case of a tie, creativity of photos will be considered.

Four winners awarded by the following vouchers based on their rankings:

Rank Vouchers (QR)

1st 2,000

2nd 1,500

3rd 1,000

4th 1,000

Student Awards

- **Eng. Mohamed Amin Ibrahim**-Graduate Teaching and Research Assistant- took the Second Place Award on the Poster Competition During the Engineering Management Open Day on Thursday, November 14, 2019



Mohamed Amin Ibrahim

- **Eng. Adel Younis**, a Ph.D. student supervised by Prof. Usama Ebead won the University Graduate Research Award, which was announced in Qatar University Annual Research Forum and Exhibition 2019.



Adel Younis

- Students **Radwan Elfahel** and **Mohammed Ammar Hafez** supervised by Dr. Alaa Al Hawari won the best poster award jointly with a student from CAM. The award was announced in Qatar University Annual Research Forum and Exhibition 2019.



Annual Research Forum and Exhibition 2019.

- **Mshael Thabit**, a master student supervised by Dr. Alaa Al Hawari got the best poster award in the conference at QU entitled “The role of youth in innovation and sustainable development in the state of Qatar”.
- Our students **Mustafa Almallah**, **Ahmed Awad**, **Radwan Alfahel**, **Abdelkarim Mikdad**, **Qasim Qasim** and **Adeeb Alnimri** were awarded with a certificate of appreciation for their outstanding research project in the 11th Annual Undergraduate Research Experience Program (UREP) competition held on 31st of March 2019. The project was supervised by Dr. Alaa Al Hawari and Dr. Mohammed Arselene Ayari.



Best poster award

(UREP) competition

Field Trips, Social and Extra-Curricular Events

Field Trips:

World Cup Pavilion

Aiming to enrich the student experience in various Civil Engineering disciplines, the Department of Civil and Architectural Engineering organized four site visits during this academic year. The students visited the World Cup Pavilion on 16 October 2019 located on the 14th floor of Al Bidda Tower. The students got a chance to create a journey through 60 years of sports history in Qatar through the information, texts and exhibits gathered around.



World Cup Pavilion Field Trip 2019

Extra-curricular activities:

- The University League is a joint collaboration between the QFA and QF which started in

2013 and supports both organizations' desire to encourage young people to play more organized football and lead a more active lifestyle. Qatar University (QU) won the University League 2018-19 title after beating Carnegie Mellon University in Qatar (CMU-Q) 6-1 in an exciting final match for the sixth consecutive time. Our graduate student **Yahia Alabbasi** and undergraduate student Zaid were players in the university football team for the season of 2018-2019.



The University League 2018-2019

- The graduate student **Yahia Alabbasi** won the first place in the 50 m free swimming, beginner's level, in the QU Swimming Tournament held at QU Sports Complex in March 2019.



QU Swimming Tournament 2019

- Graduate students **Yahia Alabbasi** and **Sateh Alabbasi** won the fourth and fifth places, respectively among the students group in the first triathlon race held in Qatar University on 19th January 2019 organized by Qatar Triathlon Federation and MAD Triathlon.



Triathlon race 2019

- An undergraduate student of civil engineering department, **Yahya Zakaria** participated in the 5th international university debating championship in Arabic, organized by Qatar Debate center. His team got the 2nd position out of more than 100 participants from all around the world



Debating championship